Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

VOLUME 6.] NEW-YORK, NOVEMBER 23, 1850. [NUMBER 10.

THE
Scientific American,
CIRCULATION 16,000.
PUBLISHED WEEKLY

At 128 Fulton, street, N. Y., (Sun Building,) and 13 Court street, Boston, Mass.

BY MUNN & COMPANY,

The Principal Office being at New York.

A. T. Hotchkiss, Boston.
Geo. Dexter & Bro., New York City.
Stokes & Bro., Philadelphia.
Barlow, Payne & Parken, London.
Responsible Agents may also be found in all the principal cities and towns in the United States.

TERMS---$2 a-year---$1 in advance and the remainder in 6 months.

Rail-Road News.

Our Lines of Railroads.

In about two years from the present date, it may be predicted with certainty that we will be able to step on board of a railroad car at the corner of Hudson and Chambers street, this city, and proceed on our way, by uninterrupted railroad, to the Mississippi River in Illinois. From New York to Galena, on the Mississippi River, Illinois, the distance is 1200 miles, and railroads are now in the course of construction, which, along with those in operation, will complete the whole chain in about the time we have specified. The New York and Erie road will be opened to Dunkirk, on Lake Erie, next year, and a road will soon be constructed from that to Toledo, and then the road from Toledo to Chicago, at the head of Lake Michigan, through part of Indiana, will be completed 250 miles by the time mentioned, which will carry the line entire to Chicago, from which the Galena road, 40 miles of which are constructed, will then be finished, ffording the longest and most splendid internal railroad communication in the world, excepting it may be the great Russian line. In the course of ten years from the present moment, it is not too much to expect an interior line of railroad communication from New York to San Francisco.

True Heroism.

On the occasion of the late breaking down of the tressel-work over the Wateree river on the line of the Camden Railway, a conductor, fearing that a passenger train that was approaching would run into a chasm, wounded as he was, crawled along the broken timbers a considerable distance, and succeeded in making signals, which prevented any subsequent disaster. This is a real act of heroism, exhibited under circumstances of a peculiarly trying nature, yet nobody thinks it worth while to learn the name of the actor. It is vaguely given, with a "we belive his name is Spell." Had he been a military hero, who had destroyed a thousand lives, his name and his fame would have been blazoned abroad, and inscribed upon the pages of history.

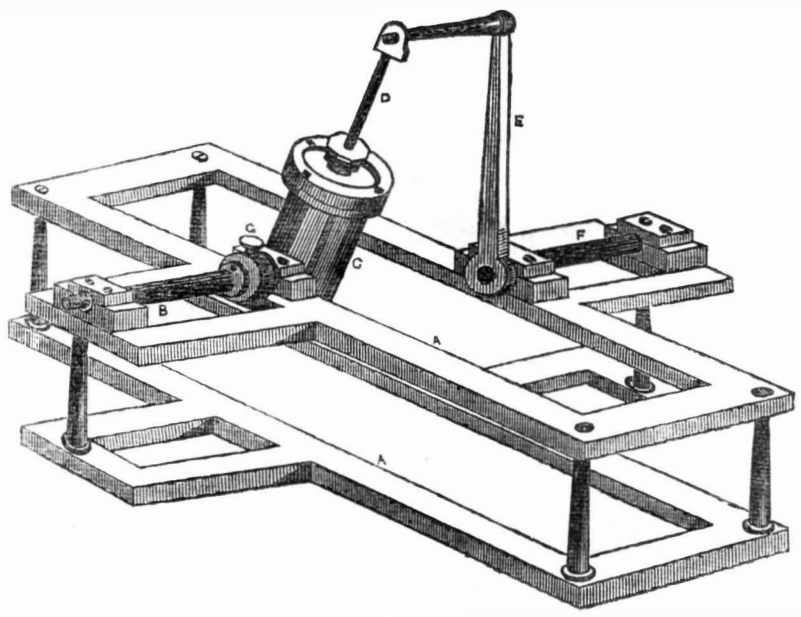
Ogdensburg Railroad.

A bill has been reported to the Vermont Legislature, to allow the Ogdensburg Railroad Co. to construct a bridge across Lake Champlain at Rouse's Point, and also with provisions that the Rutland and Burlington Co. may extend their road from Burlington northward, and connect with the Vermont and Canada in Swanton, and thence run their engines and cars over the latter road across the bridge; that a double track shall be laid from this point of connection westward; and that other roads that may be chartered to connect with the Vermont and Canada shall have similar and equal rights and privileges.

Bronze Mordant.

Water, 10 parts; nitric acid, 5 parts; muriatic acid, 1 part. Mix.

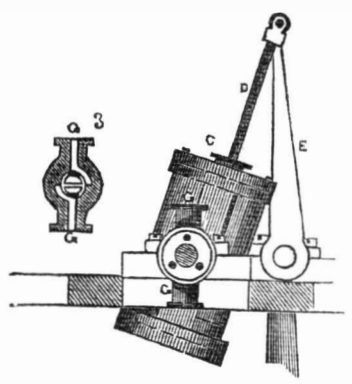
WILDER'S REVOLVING CYLINDER ENGINE.---Figure 1.



This Engine is the invention of Mr. A. A. Wilder, of Detroit, Michigan, the inventor of the Lee Way Indicator, and the Hand Copying Press, which have been illustrated and described in our last two numbers. Notices of this invention have spread far and wide, but we suppose that not one has derived anything like a correct idea of its action. We have seen rotary disc engines, steam wheels and oscillating cylinder engines, but we never saw a rotary cylinder steam engine, before this one of Mr. Wilder—it is a novelty to us in engineering.

Figure 1 is a perspective view; figure 2 is a side elevation, and figure 3 is a vertical section of the steam box. The same letters refer to like parts, on all the figures. A A represents a frame; B is an axle, or shaft of the cylinder, C, on one side, and F is a shaft on the other side, but not opposite to B. The shaft, F, is attached to long crank, E, which is connected by a crank-pin to the top of the

FIG. 2.



piston rod, D. It will be observed, by figure 2 that the axle, B, is not in the same line with the axle, F. The two are at such a distance apart as describes the leverage, or what would be the length of the crank in common engines; G is the steam-box. The top is connected with the steam boiler, and is the inlet passage, the lower part, G, is the ejection or exhaust. The inner part of the axle, B, is cast on the cylinder, and is hollow, divided by a partition in the middle, seen in fig. 3. This hollow axle has two openings indicated by the dark marks, which openings become the injection and exhaust passages alternately. This will be easily understood by referring to figure 3. The top passage, G, of the steam-box, is the inlet steam passage, and the lower passage, G, is the exhaust. Allowing the axle to revolve, it will be observed, that the two dark openings in the axle, will alternately be in communication with the inlet and exhaust passages, and thus allow the same passages alternately to receive and exhaust, at both ends of the cylinder, under and above the piston. The openings and passages to the ends of the cylinder under the piston, are the same as in ordinary cylinders: the axle, therefore, is the valves of the engine. It will be observed that the piston, although it has a stroke from end to end of the cylinder, does not travel far either way from the central axle, B, and it describes a somewhat curious figure.

Mr. Wilder has taken measures to secure a patent for his invention, and an engine of the same kind is now in operation in Detroit. We have seen a number of letters from very respectable authorities who have seen it in operation, and who speak highly of its operative qualities. We have seen a neat model of the engine, but have not had the pleasure of seeing a working engine in operation. It should be observed that the length of the long crank, E, is such as to be equal in length with the piston rod, from the centre of the piston; and the distance between the centre of the axle, B, to the centre of the axle, F, is just the half length of the *stroke* (or cylinder.)

To Fatten Fowls.

The best food for fattening fowls is potatoes mixed with meal. Boil the potatoes and mash them fine while they are hot, and mix the meal with them just before it is to be presented. They fatten on this diet in less than half the time ordinarily required to bring them to the same condition of excellence on corn, or even meal itself.

Gold in Ærolite.

A very curious phenomenon took place in the department of the Marne, in France. A globe of fire appeared in the sky about 9 o'clock, P. M., and rolling with terrible rapidity, fell at a short distance from a company of four agriculturists, who were returning to their farm. The peasants went to the spot and found there a glittering stone, which they picked up and carried home. To their great wonder and astonishment the stone was composed of a large quantity of gold; and it is said that its value amounts to 2,000 francs. This has caused an immense sensation among the corps of *savants*, and to us in America, it appears more strange than true.

Keeping Pumpkins.

We have kept them to the middle of July by putting them in a dry celler upon a scaffold where the temperature was at no time below the freezing point.

To give Copper Goods a Coating of Bronze or of Brass.

FOR BRONZE.—Tin the surface of the copper by the process adopted for pins, that is, by boiling them in grain tin, in a clear solution of cream of tartar. Half an hour will usually suffice for this, if the boiling has been kept up, especially if a few drops of chloride of tin are added to the mixture. The copper having been thus tinned, well washed and cleaned, is to be moderately heated until it acquires the tint of bronze which may be desired.

FOR BRASS.—Instead of the mixture above mentioned, use granulated zinc, with a saturated solution of sal ammoniac, and boil in the same way. When the copper has acquired the appearance of zinc, it must be washed, cleaned, and carefully heated until it acquires the yellow color of brass. A small quantity of chloride of zinc may be added, to facilitate the zincage.

Pentenkofer's Copper Amalgam.

Copper, 30 parts; mercury 70 parts. This amalgam is much used by the Paris dentists as a succedaneum for the teeth. It may be readily made by taking finely divided copper, obtained by precipitation, from solution of sulphate of copper, by means of metallic iron, sprinkling over it nitrate of mercury, adding a small quantity of metallic mercury, and well triturating. The mass which is at first brittle, quickly softens, and assumes the degree of consistence desired the moment that it is incorporated with a suitable quantity of mercury.

Liquid Saleratus.

Put the salts into a bottle, and add water till nearly the whole is dissolved, and cork up for use. A little experience will show you the quantity to use, and it insures a perfect and uniform distribution of the alkali in every part of the flour, and avoids those unsightly and disagreeable tasting spots in biscuits, that can hardly be avoided when used in the other state.

Malleable Brass.

By M. Reich. Copper, 33 parts; silesian zinc, 25 parts. Melt the copper, and then add the zinc, previously purified from sulphur; stir well and run into bars, by means of sand moulds.

Fine alcohol can be manufactured from the peel of the sour orange. It has been tried successfully in Savannah, Ga. A sample is to be sent to the London fair.

The Races of Man.

Dr. Charles Pickering, an English author of a book entitled as above, describes *eleven* distinct races of man, founded on what he deems essential differences He thus enumerates them and the population of each race:

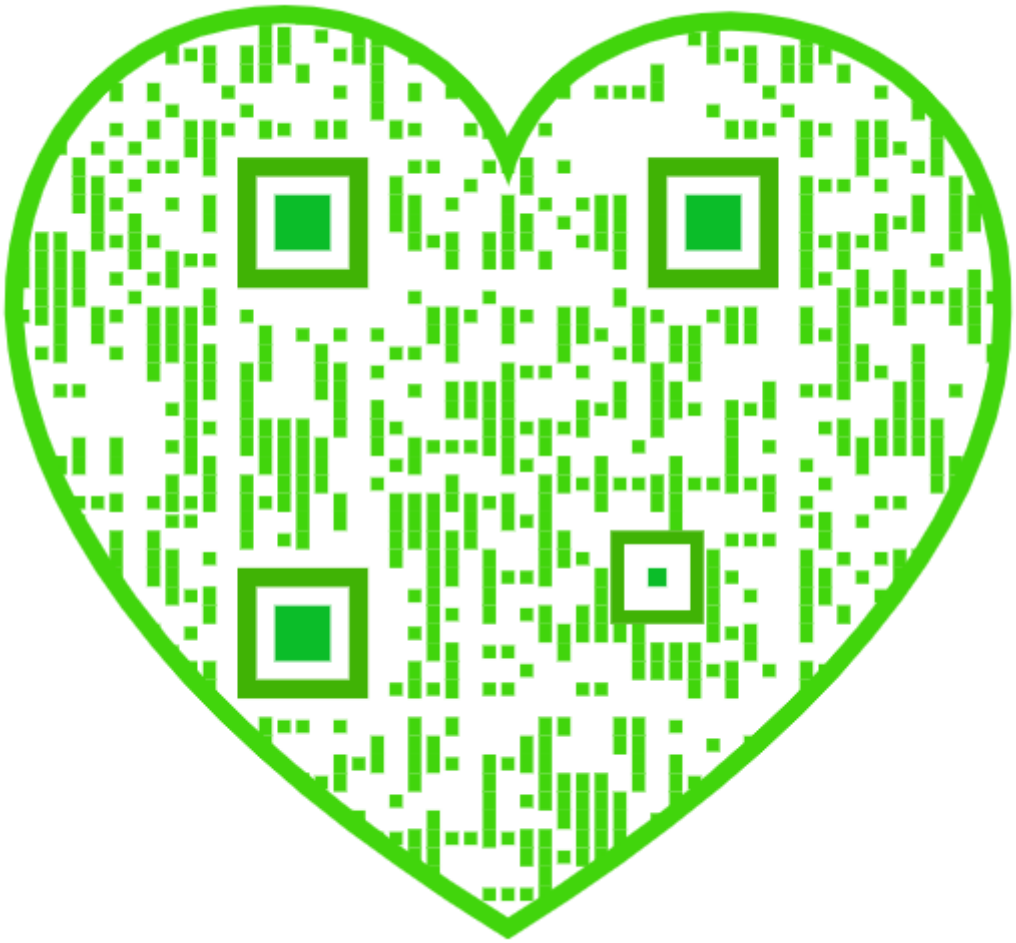
White,	350,000,000
Mongolian,	300,000,000
Malayan,	120,000,000
Telingan,	60,000,000
Negro,	55,000,000
Ethiopian,	8,000,000
Abyssinian,	3,000,000
Paupan,	3,000,000
Australian,	500,000
Hottentot,	500,000
Total,—	900,000,000

Dr. Pickering argues that the human races radiated from four centres—1. From Thibet, in Asia; 2. from Abyssinia, in Africa; 3 and 4, from North and South America.

American Apples.

In a letter in the Buffalo Commercial Advertiser, from London, the writer says he finds American apples are wanted. There have been no shipments for two years from abroad —15,000 barrels will find immediate sale, at good prices.

© 1850 SCIENTIFIC AMERICAN, INC.



Miscellaneous.

Fair of the American Institute.

SILVER MEDALS AWARDED.—(CONCLUDED.)

Alex. Stivens, New York, parallel vice.

George K. Snow, Boston, Mass., book and newspaper folding machine.

Joshua Lowe, New York, regulating expansion machine.

Chas. Graff, Philadelphia, lathe machine.

Browne, Stivell & Zee, Albany, N. Y., leather splitting machine.

T. C. Avery, New York, magnetic multiplying machine.

H. W. Bennett, Rutland, Vt., model of locomotive.

S. Ford, Staten Island, dry-pressed bricks.

Daniel Adee, New York, American cast steel.

Chas. F. Mann, Fulton Works, Troy, N. Y., portable five horse steam engine and boiler.

Jos. Hyde, Troy, N. Y., improved hollow iron wagon.

W. R. Nevin, New York, model of cracker machines.

S. W. & J. Bullock, New York, operating progressive power oil press.

A. M. Eastman, Boston, Mass., Dwanis thermo electric telegraph, for showing the temperature of steam in boilers.

W. Waldren, New Brunswick, N. J., paper finishing machine.

Wm. Ballard, New York, cemetery fences.

Geo. W. Hoyt, Layfayette, Ind., warehouse scales.

A. H. Wright, New York, hot and cold air furnaces, for making pig iron.

J. Adams & Son, Hadley, Mass., machine for cutting felloes.

Reuben Daniel, Woodstock, Vt., wool picker.

Buck & Soams, New York, finished plane irons.

Chas. Howland, New York, telegraph bell.

W. S. Bartle, Newark, N. J., water regulator for steam boilers.

Knight Reed, New Haven, patent sugar boiler.

Gideon Hotchkiss, Windsor, Broome county, N. Y., counter bridge and frame block forartist mills.

C. Winch, Nashua, N. H., model of spike machine.

John H. Lester, New York, second best revolving cutter wood planing machine.

Wm. Blake, New York, best specimen of fire-proof paint.

A. Hinckley, New York, best machinery oil.

Lord, Lynch & Co., New York, best family compound washing soap.

R. T. Babbitt, New York, double refined saleratus.

Zavier Brazin, Philadelphia, best perfumery and choice soaps.

H. P. & W. C. Taylor, Philadelphia, best transparent soap and oleophane.

Francis Rannippen, Brooklyn, best crystalized starch.

Daniel Smith & Son, New York ravens black.

T. Roettger, New York, bleached shellac and sponge.

John Dwight & Co., New York, soda ash.

Wm. Dinn, New York, vermecelli.

Ch. Ellis & Co., Philadelphia, chemical preparations.

E. Lyon, New York, magnetic powder and pills for destroying insects.

W. Bergen & Co., N. Y., refined saltpetre.

Geo. H. Bates, Cincinnati, O., best prussiate of potash.

Wiggin & Co., Boston, Mass., best candles.

Pierson & Robertson, Newark, N. J.. best varnish.

Thos. J. Husband, Philadelphia, best calcined magnesia.

W. Hull & Son, New York, fancy and other soaps.

New England Butt Company, Providence, R. I., best cast butt hinges.

A. L. Johnson, Baltimore, Md., patent revolving shutters.

W. Maguire, Cincinnati, improved sash fastener.

S. B. Snedaker, Cincinnati, blind hinge.

Baldwin & Many, New York, porcelain door knobs.

Lewis Lillie, New York, best bank locks.

T. P. Murphy, New York, best bank lock, with best workmanship.

Industrial Exhibition in 1851.---Circular.

ROOMS OF THE NATIONAL INSTITUTE,
Washington, Nov. 7, 1850.

The Executive Committee appointed by the Central Authority of the United States on the London Industrial Exhibition, respectfully present the following summary of information on the most important matters requiring the attention of State Committees, and of those who intend to become exhibiters.

Committees appointed by the Governors of the several States are recognized as the proper judges for selecting articles suitable to be sent to the exhibition from the United States.

Articles intended for the exhibition will be examined by the Committee of the State or Territory of which they are the products.

The State Committees will furnish duplicate certificates of all articles examined and approved by them, to the Executive Committee at Washington, who will give the sanction required by the British Commissioners.

Articles approved in the manner above prescribed, will be forwarded to London free of charge, from the port of New York, in a national vessel placed by the Navy Department at the disposal of the Central Committee for that purpose; and, at the close of the Exhibition, they will be returned in the same conveyance to the same place, unless otherwise disposed of.

The Treasury Department will afford, as far as practicable, through the Revenue Cutter Service, facilities for forwarding objects from the different Atlantic ports to New York.

Should the vessel designated to convey the goods to London not be in readiness to receive them on their arrival at New York, they will be stored at the Navy Yard, and afterwards put on board, free of expense to the owners.

All goods intended to be forwarded to the Exhibition by the government vessel from New York, should be delivered at that place duly marked, and with suitable invoices, containing the corresponding marks. In addition to other marks, there should be inscribed on each package the words "London Exhibition."

No article will be received at the Navy Yard after the tenth day of January, 1851, as the vessel will sail soon after that period.

All expenses in London, for cartage, unpacking, arranging for exhibition, and removing of packing cases, must be paid by the owners of the goods or their agents.

Detailed statements relative to the exhibition and to the several classes of objects appropriate thereto, have been furnished to the several State Committees, and will be supplied to those who may require more particular information, upon application to the Executive Committee.

PETER FORCE, Chairman.

Jos. C. G. KENNEDY, Secretary of Executive Committee.

REGULATIONS BY THE COMMISSIONERS IN LONDON.

1. The exhibition is to be opened in Hyde Park, London, on the 1st day of May, 1851. The building, constructed chiefly of cast iron and plate glass, 1,848 feet long, 408 feet wide, and 108 feet high, with a machinery room, 936 feet long, and 48 feet wide, will be nearly fire proof.

2. Goods will be received between the first of January and the first of March, 1851. After the latter day none can be received.

3. The productions of all nations will be exhibited together under one general classification.

4. Articles exhibited will be divided into four sections, viz.

1st. Raw materials and produce.
2nd. Machinery.
3rd. Manufactures.
4th. Sculpture models and plastic art.

5. Exhibiters will deliver their goods at their own charge and risk, at the building in Hyde Park.

6. Articles liable to perish during the period of eight months, from the first of January to the first of September, are not suitable to be exhibited. This applies more particularly to certain articles derived from the animal and vegetable kingdoms.

7. Exhibiters will be at the cost of their own insurance. Glass cases, when required, must be furnished by the exhibiter.

8. Any exhibiter may, by permission of the Royal Commissioners, employ a servant to keep in order and explain the articles which he exhibits, but not to invite purchasers.

9. Prices are not to be affixed to the articles exhibited, but may at the option of the exhibiter be stated in the invoice sent to the Royal Commissioners.

10. No articles of foreign manufacture can be admitted for exhibition, unless they come with the express sanction of the Central Authority of the country of which they are the produce.

11. Goods will be admitted without payment of duty, and sealed with the official seal of the board of customs till their arrival at the building; but bonds will be required of the owners or agents for the payment of duties in case they should be sold in England after the exhibition is over. No goods can be removed until the exhibition is finally closed.

12. The rules of awarding prizes will conform to the section or department to which the goods belong.

13. In the department of raw materials and produce, prizes will be awarded upon a consideration of the value and importance of the article, and the superior excellence of the particular specimens exhibited; and in the case of prepared materials, the novelty and importance of the prepared product, and the superior skill and ingenuity in the preparation, will be considered.

14. In machinery, prizes will be given with reference to novelty in the invention, superiority in the execution, increased efficiency or increased economy in the use of the article exhibited. Its importance in a social view, and the difficulties in perfecting it, will also be taken into account.

15. In manufactures, increased usefulness, such as permanency of colors, improved forms and patterns, superior quality, or higher skill in workmanship, new materials used, and combinations of materials, beauty of design in form or color, with reference to utility, and cheapness relatively to excellence of production, will be the bases of decision.

16. In sculpture models and the plastic art, rewards will have reference to the beauty and originality of the specimens, to improvements in the processes of production, to the application of art to manufactures, and, in the case of models, to the subjects they represent.

17. Juries, to consist partly of Englishmen and partly of foreigners, will be composed of men of known ability to form a judgment,—above the suspicion of either national or individual partiality.

18. No competitor for a prize can be placed on a jury in the particular department in which he is a competitor.

19. To exhibiters from the United States there have been allotted of ground space 85,000 square feet, subject to a deduction of one half for passages, and of wall or hanging space, 40,000 square feet, not subject to deduction.

[As a great number of our friends would like to know where the articles for exhibition from this State are to be sent, to whom, and who are to examine them and give certificates, we would respectfully state that the Committee appointed by Governor Fish, for that purpose, appear to be under a cover, like fish headed up in a barrel: we hear nothing about them, and know not where they may be found, except foggying it about the rooms of the American Institute. The Committee consists of Hon. Luther Bradish, E. P. Prentice, Esq., Hon. A. Van Bergen, Chas. H. Hull, Hon. Jas. Talmadge, Hon. W. Buel, A. Chandler, Esq., Sec'y. However fine the names of these gentlemen may appear, and they are "all honorable men," a more inefficient and less competent set of judges and persons, for the purpose they were appointed, could not have been selected. What, appointing a set of lawyers, and these undistinguished in any department of science and art, to honor or dishonor New York State at the great Industrial Exhibition! The thing is shameful and disgraceful to Gov. Fish. There are some lawyers in this city who understand machinery well; why were not some of them appointed instead of the men whose names we have mentioned? However worthy these gentlemen may be to judge of bills of parchment, politics, and some of them not a little skillful in poudrettes and making set speeches at Fairs, they are not fit to tell the difference between a spinning mule and a Jersey mule. Were there no mechanics in New York who were competent to judge of machinery? We ask Gov. Fish that question.

Unrolling of an Egyptian Mummy in Ireland.

The Banner, of Ulster, gives an account of the unrolling of an Egyptian Mummy, before the Belfast Natural History Society, at a late meeting. The mummy was procured by Sir J. Emmerson Tennant, and as the sarcophagus bore a royal hieroglyphic the act of unrolling was looked forward to with great interest, as it was also from Thebes—the city of a hundred gates—the site of edifices without a parallel in the world, now a heap of ruins, and metropolis of entombed mummies numbering it is calculated 10,000,000. Alas! for human curiosity, when, Dr. Carlisle had got into the merits of the case, it was discovered that some ruthless Arab had been there before him, and had cut through to the face, the thick bandaging which wrapped the head of the mummy. A small piece of gilt wood, rounded, and symbolical of Eternity, was found on the breast of the individual; a large collection of green beads, apparently of metal, was discovered at the head, and three little gilt gods and three gilt plates were taken, the former from the right side of the body, and the latter from the left. The bandages were of linen, the greater number being about three yards in length, and four inches in breadth, and having insertion and fringe at one end. They were of various textures—some specimens about the chest were fine muslin. During the process of unrolling, several pieces of linen taken from the left shoulder of the mummy served, by various stamped inscriptions, to identify the individual with the coffin, and to point out her parentage, age, and circumstances. Before the mummy had been uncovered, it was discovered that not a tissue hung together—almost all the bones were completely pulverized. The linen was not much injured, the sarcophagus and case were perfect, the hieroglyphics were apparently fresh, even the gods were safe; but the Scripture truth, "Dust thou art, and unto dust thou shalt return," was unmistakeably apparent in the totally decayed members of the individual itself.

Like all mummies, even Gliddon's, it was stated by Egyptian antiquarians present that the individual was of Royal extraction—a princess, about forty years of age, 4 feet 8 inches in height, and partly deformed; that the body was preserved with bitumen, and was at least 3,400 years old—the oldest, with one exception, ever unrolled.

There were "giants in those days" but not in Egypt.

A Fire Engine for the Industrial Exhibition.

The Friendship Fire Company, of Baltimore, are going to send their splendid new engine to the World's Exhibition. Daniel Spuer, Esq., the President, is going out with it at his own expense. It is stated to be a machine of exquisite workmanship, and will no doubt bear away the Bell at the Exhibition, as the American fire engines are the finest in the world.

How to Keep Worms out of Dried Fruit.

Have a pot full of scalding water on the fire, then put the fruit into sacks of suitable sizes, and dip them in the boiling water, which will kill the worm or what causes it. After dipping, spread the fruit out to dry—the scalding does not do the fruit any injury. Whatever it is that causes the worm, is deposited on the fruit during the process of drying.—[Southern Cultivator.

© 1850 SCIENTIFIC AMERICAN, INC.

For the Scientific American.

The Voltaic Battery.---Precipitation of Metals.

NUMBER VI.

In the article on gilding we endeavored to describe the process in such a manner that the watchmaker might conduct it with an apparatus placed under his counter. But electro-plating will be considered as a trade by itself, for the arrangements for this process are too extensive to be put in order and again abandoned on every occasion.

In commencing the business of electro-plating we must first provide an abundant supply of rain or other soft water.

The battery to be used may be the same as that described for gilding, except that it should be larger : each glass should hold half a gallon.

The vat to hold the solution of cyanide is of great importance; there is no vat yet contrived which answers well; the kind most generally used is constructed by making a double box, the inner one to be every way one half inch from the outer : into the space between the boxes melted pitch is poured, the boxes being previously secured in their relative positions by bars screwed to their upper edges.

To make the cyanide of silver, the metal must first be dissolved with nitric acid; this is very frequently a vexatious operation; commercial nitric acid is very generally contaminated with muriatic acid, this envelopes the silver with an insoluble crust of chloride, and so effectually defends the metal from the nitric acid. When a lot of nitric acid has been bought, it should be purified from muriatic acid by adding nitrate of silver to it till it ceases to precipitate the white chloride, the acid must then be violently agitated for a minute, when the chloride will settle and leave the acid clear, it is then to be poured off, and the chloride placed in a bowl, and some fragments of zinc put into it; the chlorine will leave the silver to unite with the zinc, and the silver will be precipitated pure in small brilliant grains, or as a gray sediment. The chloride of zinc may be washed off, and the silver re-dissolved in nitric acid.

The acid, when purified, will readily dissolve the silver; the metal should be put in an evaporating dish, and a portion of the acid diluted with half its weight of water poured on it; heat must now be applied. After the acid has ceased to act, it should be poured off, and a fresh portion of the dilute acid applied; this is to be repeated till all the silver is dissolved. By this method of adding the acid in successive portions, we avoid having an excess of acid with the nitrate of silver, and economise time, fuel and acid. The whole solution is to be returned to the dish, and while yet hot a slender stream of strong sulphuric acid is poured into the nitrate until it ceases to precipitate the white sulphate of silver. After the precipitate has settled, the blue solution of copper and free acid may be poured off and saved for the next time we want to dissolve silver, but as it contains some silver, this may be precipitated by adding common salt; after collecting the chloride it may be decomposed as before shown, and the acid and copper thrown away. The white sulphate may be washed to free it from the remaining copper and acid; this wash water must also be treated with common salt to save what silver it may contain.

The pure sulphate of silver may now have some water poured on it to dissolve a portion; not much will be dissolved, for it is very insoluble, yet ever so little will be sufficient. We must now gradually add a solution of cyanide of potassium till the white curdy cyanide of silver ceases to form ; care must be taken not to add the cyanide of potassium in excess, as that would dissolve some of the cyanide of silver. After well agitating the cyanide it will settle down; the sulphate of potash should be poured off and the cyanide washed and dissolved in an excess of cyanide of potassium. The solution of silver made by this method will work smoother and keep longer than any other, and has the great advantage of being clear of acid salts and free potash.

The apparatus will now be ready for work, and, for distinction, we may divide the operations into two classes : the first will embrace the silvering of curtain furniture, trinkets, and everything not requiring a thick coating of silver. The second class will embrace table cutlery, door furniture, and the re-plating of old plated ware, and every thing requiring a durable coating of metal—this branch is properly electro-plating.

It is of the very first importance that the articles to be silvered should be perfectly clean at the moment they receive the first film of silver; or, in other words, that there should be no impurity between the silver and base : simple as this may seem, nothing can be more difficult to attain. Every metal will require a different process for cleaning, and where two metals form different parts of an article, the cleaning process is very difficult. Some things are cleansed by the wet method, and others by the dry—some by both.

The dirt or impurities may be divided into three orders—first, insoluble matters, as dust, earths, and the like—these are removed by sandpaper or brushing; second, grease—this is removed by soft soap, ley or turpentine; third, oxides—to be removed by acids.

To give the procedure for every metal or article, would be too tedious. We will give a few as samples :—Copper, after being freed from earth and grease, should be dipped into nitric acid, this will give it a brilliant appearance, when it must be well rinsed in pure water. Brass should go through the operation called dipping, which is extensively applied to curtain brasses and gas fixtures, to give them a golden hue : pulverised saltpetre is mixed to a paste with sulphuric acid, and the mixture set aside until done fuming; a little dilute sulphuric acid is then put to it, and the brass immersed, when a brisk action takes place, and the brass, if free from lead, acquires the golden hue; it should be immediately rinsed in hot water and put in the vat to silver. Old plated ware is to be immersed for half a day in a dilution of soft soap with turpentine and rosin, taken out, well brushed, and placed in strong ley for an hour, then well polished with dry whiting.

The articles to be silvered must be connected with the zinc end of the battery and immersed in the vat; and every article should be opposed by a silver plate of the same size and attached to the silver end of the battery. The dipping into the vat should always be the last thing to complete the voltaic circuit.

After the articles are silvered they should be immersed in water containing a little sulpuric acid, then rinsed in hot water, dried in saw-dust and gently heated for one hour; they may then be burnished.

The operation of silvering, continued till the film is of some thickness, constitutes electro-plating; let the beginner thus plate some spoons or a door plate; he will find it no easy matter to get a smooth coating, and uniformly as thick as required for a door plate, and if he should here be successful, most probably he will find that when the articles are burnished the metal will peel off and rise in blisters by a gentle heat, and the silver will become dingy in a few hours after cleaning.

When the electro arts first appeared, many persons in the large cities began electro silvering, but when they came to try electro-plating they quickly abandoned their new trade.

We will consider these defects and their prevention in the next paper.

The Linen Trade of Ireland.

"In 1830 the protective duty on Irish linen was removed in Ireland, and at that time there were about 1,000 dozen French cambric handkerchiefs imported into England for every 100 dozen made in Ireland. In the next four years, from 1830 to 1834, the Irish manufacture was in the proportion of 300 to 1,000, from 1834 to 1838 as 900 to 1,000, from 1838 to 1842 as 4,000 to 1,000, and from 1842 to 1846 as 16,000 to 1,000 dozen. Since the withdrawal of the duty, great manufactures have arisen in the North of Ireland, and what was the result? Why, the great dealers in London waited on me the other day, and stated that whereas, ten years ago, three-fourths of the cambric and cambric handkerchiefs came from France, and one-fourth only from Ireland, in the last year the proportion was just reversed, one-fourth coming from France and three-fourths from Ireland."

The above is an extract from Sir Robert Peel's speech in 1846, and the inquiry naturally suggests itself, "what has been the cause of this remarkable increase in the Irish linen manufacture?" Well, this great increase of Irish manufacture is the result of an invention in the finishing of the articles. The inventor is a Mr. Adam Howie, of Woodburn, Carrickfergus, in the North of Ireland. He is a practical bleacher and finisher, and introduced the improvements at the Lambeg Bleach-works, near Lisburne; they have since been introduced into all the bleach-works in the province of Ulster, and they enable the manufacturers to compete successfully now with the French. The finishing of goods has as much to do with the sale of them as the quality of the material and the weaving. Goods made out of the same quality of linen, cotton, or wool, may be submitted to exactly the same operations, excepting the finishing, and the one class may sell for 25 per cent. more than the other, owing to their superior finish. Here we have a striking example of the superior finish of a certain class of Irish goods affecting the whole industrial prosperity of a large province (the most enlightened portion, to-be-sure) of Ireland. This should teach our manufacturers a useful lesson.

For the Scientific American.

Vacuum for the Transmission of Power.

There have been several instances of vacuum successfully employed for the transmission of power, and I am inclined to believe that there are many more in which the same might be applied to advantage, but the almost universal adoption of steam induces us to overlook the application of any other power. Air, the food of life, so many cubic feet of which we imbibe each minute, has its absolute requirement more generally acknowledged than its nature and properties are known. In reference to pneumatics, the ancients have been the legislative discoverers—consecutively came Aristotle, who shrewdly suspected the air to have weight; Hero, that suction would rarefy it; Galileo and Torricelli proved more correct and useful in their studies; and Papin, both in England, Auvergne and Westphalia, first applied, in a practical form, its transmission through pipes, for the obtainment of motive power; afterwards Pinkus, of Pennsylvania, who first and so eminently succeeded in establishing in England the propulsion of carriages on railways, on the principle of air acting in opposition to a vacuum, a principle which overcame the difficulties encountered by Medhurst in 1799, Bombas in 1828, Mann and Samuel Wright in the same year, who, employing compressed air, were ignorant of the chemical loss sustained by the escape of caloric evolved by compression, and necessary to the development of the power generated; and many attempts there have been to revive this exploded theory, by which the laws relating to pneumatics are directly impugned; for, independent of the chemical loss adverted to, the great friction of the air, increasing as the cube of its density and velocity, is of itself an insuperable obstacle to the use of long columns of compressed air, an example of which is recorded in the Franklin Journal, viz., of a three inch diameter pipe, one mile long, which, to drive a column of air through with a velocity of 128 feet per second, 1½ miles per minute, or say 80 miles per hour, required a pressure of nearly 5½ atmospheres, giving a delivery of 2,304 gallons per minute; and that a nine feet head of air, or 1-800th of a 9 feet head of water, through the same pipe, would generate a velocity of only 1 foot per second, or three-quarters of a mile per hour, whereas the initial velocity of ordinary atmosphere entering a vacuum, is 400 metres per second, or say 840 miles per hour,—thus showing the superiority of a vacuum over a compressed air force, and supposing a pure vacuum to be obtained, a propelling power of nearly 15 lbs. on each square inch would be given, which might, through the means of underground pipes, be conveyed any distance, and the first or prime mover, exhausting the air, be made to develope its power in a thousand different places, miles away from itself. I shall not intrude upon your space here to show the exact machinery by which such results could be accomplished, but certain it is that America, possessing the finest water power in the world, could, by a proper application of the theory treated on, secure for all her mills, factories and agricultural purposes, a power, safe and entailing no working cost or expenditure of fuel. Leaving the suggestion for more able hands, I remain, A. G.

New York, 1850.

The Arkwrights as they Are.

The following from the London Morning News will be read with interest by our readers engaged in the cotton manufacture :

Some months ago, when the head of the Arkwright family died, and his will came to be proved, the public were astounded, and some of them not a little alarmed, at finding the enormous extent of his wealth. The personal property was sworn to be under five millions! Under five millions! Why, five millions yield, at a rate of five per cent. interest, an annual income of not less than two hundred and fifty thousand a year. Not more than two or three men in England are known to possess such incomes. And then the rate at which it must be increasing! The Arkwrights don't live like Nugents. Their establishment, though Hillersly Castle is grandly situated, is remarkable for the modesty of its furnishings and the simplicity of its entertainments. The heirs of the family are devoted to no costly extravagances. They keep neither horses nor yachts, opera boxes nor Belgravian palaces. On the contrary, the visitor at any hour in the day, ar any day in the week, will find them in the mill, in the workshop, or in the counting-house. The untiring energy of the founder of the family, lives in his descendants; the splendor of wealth—the attraction of a gay world—political or literary ambition—all these things fail to draw them for a moment from the daily routine of spinning and weaving, the fingering of yarn, the examination of bad cuts, and the casting up the accounts. They have no pride of birth, no political dignity to support, like the Southerlands, Westminsters, and other noble millionaires. Their millions have only to lie by and gain more millions—a process which many fear may result in the contingency suggested by the great Thellusan case; from which it would require the momentary ascendency of the Old English doctrines of the levellers to set us free. But the Arkwright family is already a very numerous one. The four or five millions were broken up into more than half a dozen portions. A few more years will see these divisions again divided, so that unless Masson mills, and the other factories belonging to the family, should spin their golden thread faster than hitherto, two or three generations hence will find a numerous colony of the Arkwrights, most of them blessed with moderate fortunes, but none of them rich enough to endanger the industrial or monetary stability of the country.

Mills for South America.

The Baltimore Sun says :—The bark George and Henry, bound from this port for the west coast of South America, carries out with her some matters of more than ordinary freight. Among her cargo is the machinery for two complete flour mills; one of them was built by Mr. Alfred Duvall, and the other by Mr. Thomas J. Mathews. All the iron work was made by Wells and Miller. The mills are to be run by water, no steam being used. Messrs William Wiker and Chas. Thomas, millers, from Baltimore, also go out, with three millers from the Brandywine Mills, in Delaware, whose names we could not learn. One of the mills is for Delano, Ferral & Co., at Conception, Chili.

The Tobacco Business.

There are in operation at the present time, in Richmond, Va., forty-three tobacco factories, in which are employed over 2,300 hands, and which produce, in manufactured tobacco, fourteen millions five hundred thousand pounds annually.

© 1850 SCIENTIFIC AMERICAN, INC.

New Inventions.

Improvement in Dams.

Mr. J. Bevan, C. E., the inventor of the "Patent Arch Girder," illustrated on page 324 of our last volume, has taken measures to secure a patent for a most valuable improvement in the construction of portable dams, which cannot fail to be a great acquisition to the engineering science of our country. For stopping crevasses, turning aside streams for the excavation of shoals, &c., we believe the plan of Mr. Bevan to be the best that has yet been brought forward. The principle of it consists in the manner of constructing the buttresses, whereby their inner ends are strapped to form grooves for the reception and guide to the pointed piles, and by so constructing the staunching curtain with horizontal planks, and apron of canvas, that it can be erected not only with great expedition, but it also prevents the water from working out any part, as all is closely faced together, however uneven the bed of the river or stream may be. The buttresses are so made that they can be erected in sections, with spiked vertical bars, to hold them fast, so that the planking can be removed easily, to allow as much or as little water to escape at any one part, as circumstances may require. The greater the pressure of water on the staunching curtain, it has a tendency to force down the piles, and thus it requires but little labor to sink them, as a slight hold on the river bottom is quite sufficient to render them firm and permanent. This plan, we believe, would have been quite successful in stopping the crevasse at New Orleans, last year.

Improved Locomotive Boiler.

Mr. Chas. F. Mann, of the city of Troy, N. Y., has invented and taken measures to secure a patent for an improvement in locomotive boilers, which is worthy of attention. The grate is placed above the horizontal part of the boiler, which consists, at the front end, of a horizontal cylinder, being divided, as it were, into two parts, with a space between, through which the ashes passes down between the grate bars, thus dispensing with the ash pan, and the boiler is brought forward under the whole length of the grate, thus adding about three feet to the real length of the boiler, without adding to its length, so far as it respects the space occupied on the frame. The boiler, by this arrangement, is also brought down very low, so as to bring the axle of the driving wheels above it. Horizontal tubes are as usual run through the entire length, and surrounding the smoke-pipe is a chamber to receive the water from the tank, so as to meet the heat as it escapes in the form of a hot current of gas, and gradually to approach the most intense heat at the fire-box, above which it ascends to the steam chamber; thus keeping up a continual and judicious circulation.

Electro Magnetic Passenger Index.

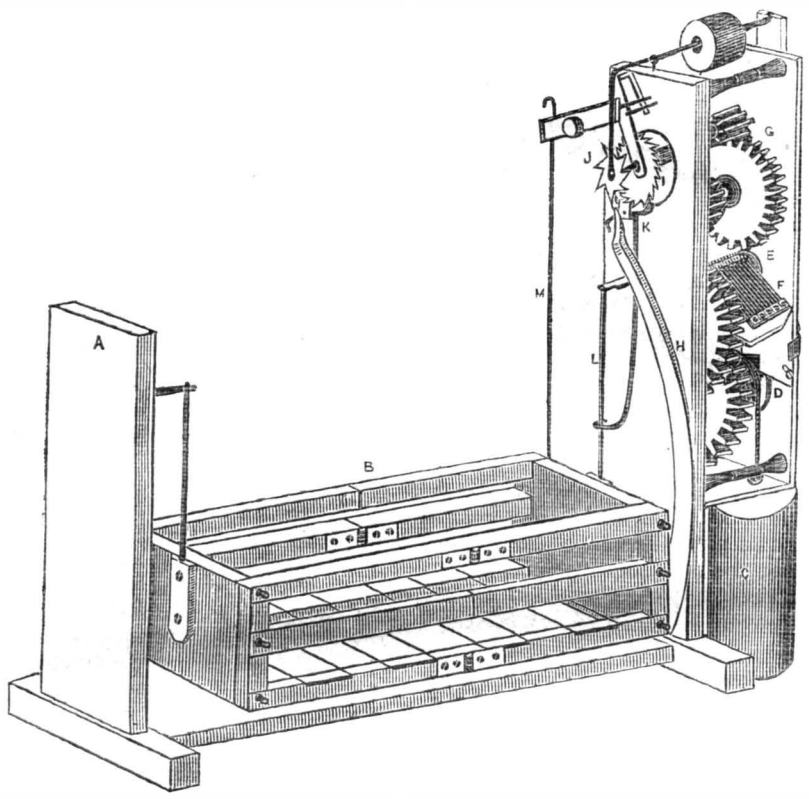
The London Times describes a new invention of a Mr. C. Pownal, for telling the number of persons who go in and out of omnibuses and stage coaches. Underneath the omnibus, in a small box, about nine inches square, secured with a Bramah lock, there is a small battery; the pressure of the passenger's foot upon the step moves a spring, and, bringing two pieces of metal into contact, completes a metallic circuit in connexion with the battery, and the mysterious current is made to flow through an electro-magnet, which attracts to it a piece of steel and drawing it up, a ratchet-wheel is caused to move one tooth forward, and the index-hand or finger of a dial to be pushed onward one degree. As each degree upon this dial is numbered, the hand advancing from number to number indicates how many persons have passed over the step at the omnibus-door since the dial was set. This brief statement will give the general idea of the invention. Considerable pains appear to have been bestowed upon the details.

[By this description, it will be observed by those acquainted with the telegraph, that the step is employed for the same purpose as the *key* of the telegraph. It could not very well be applied to the omnibuses of this city.

THE SELF-SWINGING MUSICAL CRADLE.

This cradle is the invention of Mr. L. F. Whitaker, of Raleigh, N. C., who has taken measures to secure a patent for the same. The cradle, with this improvement, is like the pendulum of a clock: it answers all the purposes of one, in combination with a spring and gearing, to keep the cradle swinging for a number of hours, and to play some tunes at the same time, like those in a musical box.

A is a post, and there is another on the opposite side; B is the cradle, suspended by a swinging rod to the post, A, and by another, L, to the opposite post. Between the latter post and another, G, there is arrayed gearing in connection with a coiled barrel spring in the inside of the cylinder, C, which keeps the cradle swinging by an escapement, of pallet and of ratchet wheels. K is the pallet of a double click, it is attached by a vibrating pin to the arm, H, which is stationary. The pallet arm is hooked to the swinging rod, L, of the cradle, so that when the cradle is swung the clicks will be set free and take into the ratchet wheel, I, giving motion to the pinion and gearing, G, which are all connected to the lower toothed wheel, over the drum of which passes the cord, D, which is connected with the barrel spring inside of the cylinder, C. The tension, therefore, of the barrel spring, is to drive the wheels, and the cradle, acting as

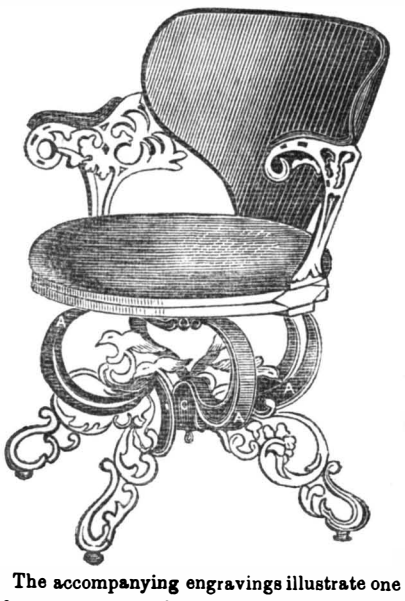


a pendulum, moves the ratchet wheels, so as to regulate the uncoiling of the spring. A weight, like that of some clocks, will answer the same purpose. There are two ratchet wheels, I and J. The one, I, has fewer teeth, and is for short oscillations of the pendulum; and there is a roller, with projections on its surface like those of a hand-organ, to act upon the metal keys, F, to play one or more favorite lullabys. The ratchet wheel, J, is for long gentle swings, and is very convenient to be set at night, when the cradle will keep moving without a hand touching it. The axle of the ratchet wheel can be moved in and out, so as to set free and take into the pallet, K, and allow clicks to take into the wheel, J. This is done by the rod, M, acting upon a top arm above. There may be two or three ways employed to do this. The whole of the gearing, although engraved upon a large scale, may be contained in a box not over six inches square, and the cradle can easily have rockers on it, and in that way, may be transformed in two minutes from a swinging to a portable rocking one, for the swinging rods can be hooked to the sides of the cradle, and therefore they can be unfastened in a second of time. This is a very neat and useful invention, and should meet with general favor.

More information may be obtained by letter addressed to the inventor at the above mentioned place, or at Fayetteville, N. C.

Warren's Steel Spring Chairs.

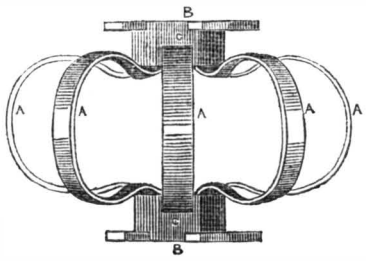
Fig. 1.



The accompanying engravings illustrate one of the chairs to which we have referred on our editorial column. Figure 1 is a perspective view, and figure 2 is a front elevation of the springs. The back and seat are secured on a collar, C, which can move round on an axis, of which B is the plate. To this axis, under the collar, C, the springs are attached. A A are the springs; they are made of flat hoop steel, and are bowed from the base, curving around and concentrating in the collar, C, under the top plate, B. The chair is all metal, except the cushioning. It has an easy elasticity; the seat revolves, and it is altogether the easiest that has ever been used in our office. No lengthened description is required; its construction will be apparent to all. Its durability is self-evident.

Mr. Warren is now applying his springs to the seats of railroad cars, and also to the bodies of the cars. It may well be said that the principle of this invention, as relating to the various vehicles to which it can be applied, is as elastic as the well-tempered steel spring itself. These chairs are for sale at 240 Broadway, this city.

Fig. 2.



Decisions of the Patent Office.

When reading the review of Examiner Fitzgerald's Report, in last week's Scientific American, I was forcibly and painfully struck with the apparent recklessness of the Patent Office, in the examinations of applicants' claims, and the decisions made thereon. The man who could make 730 examinations in one year, working six hours per day, could not but be expected to "cut off 460 heads,"—a familiar expression, it would seem, in the Patent Office. The office has power to reject and grant patents. An appeal from its decision is attended with a great deal of expense. No poor inventor can appeal—the means to do so are not at his command. The Examiners know this, and this is the reason why they steam through their examinations so recklessly, and employ the guillotine so freely. Under Mr. Fitzgerald the cut and thrust system of Hungarian exercise, was always practised, and this is the reason why his Report exhibits such skill of fence in warding off the claims of applicants. His Report for 1848 exhibits no less a number than 546 "heads cut off," and 356 patents granted. Six months of that year his labors were joined with Mr. Renwick's, and this may be a reason why not one half the number of applicants were rejected that year, instead of about two-thirds as in 1849. Both of these Examiners, however, have a very bad name for rejecting claims. Even by Mr. Ewbank's Report, which I have read, it would seem that the Patent Office looks upon applicants as birds of prey, and the Examiners "snuff the battle afar off."—This is deeply to be regretted, because it unfits the Office to act candidly towards the inventors. I have heard many inventors threaten to agitate the question of reforming the Constitution, to bring back the old State Rights of Patents, and to abolish the jurisdiction of the Federal Courts in such matters. It would be no difficult matter to get two-thirds of the States to acquiesce in this change, just now; and if the Patent Office is not more careful than it has been, it will be a less difficult matter next year. Junius Redivivus.

New York, Nov., 1850.

A New Life-Boat.

A life-boat, quite novel in its design, has been invented in England. It has air-tight seats all round the side, but the bottom consists of open work of iron, so that the water passes freely through, and even wets the feet of the rowers. The advantage is, that the water inside and outside is on the same level, and the boat is balasted and kept upright by the water itself.

Steam Between Antwerp and New York.

We see it stated that a company of gentlemen in Belgium, have subscribed one-half the sum required to construct a line of four splendid steamships, to run between New York and Antwerp, provided the other half of the requisite capital be made up in the first named city. An agent of the company is now in New York to confer with capitalists and merchants on the subject.

New York Mechanics' Institute.

The Mechanics' Institute, of this city, will hold a grand Fair, next year, commencing about the first of June. The lecture season commenced last Monday, at Hope Chapel: the exercises were very interesting—Park Benjamin delivered a poetic lecture, "The Age of Gold." He kept the audience in a roar of laughter from the beginning to the end of it. It abounded with wit and humor. We hope our mechanics will patronise this Association,—if they study their own interests they will.

U. S. Circuit Court, N. Y. Judge Nelson presiding.—On the 13th inst., Wednesday last week, a verdict was given of $54 for infringement of a patent for improved Dumping Earth Cars. Finch (of Peekskill, we believe) was the plaintiff; Seymour & Rikeman, (stove manufacturers, Peekskill,) the defendants.

Washing Stairs or Passages.

The sides of stairs or passages on which are carpets or floor cloth, should be washed with sponge instead of linen or flannel, and the edges will not be soiled.

© 1850 SCIENTIFIC AMERICAN, INC.

Scientific American

NEW YORK, NOVEMBER 23, 1850.

Commissioner of Patents' Report.

Chief Examiner Henry B. Renwick, of New York, has charge of the examining of six different classes of subjects, viz., metallurgy, steam and gas engines, navigation implements, civil engineering and architecture, fire-arms, &c., and a miscellaneous class. He examined 639 applications last year, rejected 373 of them and passed 266. Not quite as many rejections as Mr. Fitzgerald, but still the sum is a large one—we believe too large. Can these gentlemen be expected to have decided always correctly, when they have gone through so many specifications in one year, working six hours per day? No. A great number of gold washers have been patented, the gold mines of California having called out the genius of the nation in this line. The most ingenious of these washers patented, as we learn from Mr. Renwick, was a hollow revolving cone, which is fed with water, which carries the light particles over the edge, while the gold sinks to the centre—a very simple and good machine, we think.

A patent was granted for a curious crucible for heating zinc ores :—"The crucible is formed like a wine bottle, with its bottom rising high up into the interior; the fire is built inside of this bottom, and the heated air, gases, &c., after circulating in the same, pass out under the edges of the bottle's bottom, and ascend in flues built along its sides.

Quite a number of machines for working in iron have been patented: the one invented for rolling iron, by Mr. Burden, of Troy, N. Y., is especially mentioned, and also the machine for filing saws, on page 228, Vol. 4, Sci. Am. A patent was granted for a novel machine for making lead pipe, which, if used in our city, (and it would no doubt be, if it was a superior one) would have saved the U. S. Circuit Court a tedious trial during last week.

No less than fifty patents were granted for improvements and inventions relating to steam engines and boilers. A screw flue boiler was patented. We saw the model of it; it is highly spoken of in the Report, but we have not heard of any of our boats or factories using it.

"Many applications have been, as usual, made for letters patent for inventions in that mechanical chimera, the rotary engine. Most of them have been rejected." This is the language of the Report. The history of the rotary steam engine published in Vol. 4, Sci. Am., has done more good to inventors in this field, that all the reports which have ever emanated from the Patent Office.

The following is the description of a singular stuffing-box, patented by a Mr. Moat, of England: "It consists in surrounding the piston rod inside of the stuffing-box with a piece of leather, vulcanized India rubber, or some other fit material, in the shape of an hour-glass without top or bottom, its neck being in contact with the rod, and its wide ends resting against the periphery of the brass collars or glands usually placed in the top and bottom of the box, which, in this case, extend into it farther than is customary. A communication is formed between the interior of the stuffing-box and a force pump, and fluid is pumped into the space between the inside of the box and the outside of the hour glass, until the pressure in the cavity is a little greater than that in the cylinder; all leakage of steam or vapor is thus prevented, and the rod may be said to move through a fluid packing."

"Many applications," says the Report, "were made for patents based upon alleged novelties in the feathering, or the vertical float paddle wheel, of the latter of which the well known 'Morgan's Wheel' may be taken as a type." All these cases, it seems, were rejected—every one of them. If the applicants had carefully perused Volume 5 of our paper they would have saved money and time. The Examiner, however, might have thought he saw resemblances to old inventions, when no resemblances were apparent to others. A curious patent was granted for a Canal Propeller, with a wheel playing between a double stern. The wheel is made to direct the water from the banks so as not to injure them, and it has a contrivance behind to quell the waves. This boat, it is stated, has been so far successful that its proprietors have been permitted to run it on several canals free of toll.

More than 25 patents were granted for improvements in fire-arms and implements of war; —among the patents granted was one for the Prussian rifle, which was illustrated in our last volume. One patent was granted for a revolver, whereby the hammer revolves, from barrel to barrel, in succession, and another was granted for a breech-loading rifle; and particular mention is made of Smith's improvement for cooling shot, which is illustrated and described on page 132 of our last volume.

A vast amount of general intelligence is required to fill the office of Examiner in the Patent Office, so as to perform all its duties faithfully and well; and along with these qualifications, a candid and liberal mind is just as essential.

Reform of the English Patent Laws.

We learn by our worthy cotemporary, the London Patent Journal and Inventor's Magazine, that a great meeting was recently held in London by the "Inventors Patent Law Reform League," for the purpose of adopting measures for a reform of the British Patent Laws. We hope that a reform of the oppressive Patent Laws will be accomplished during the next Session of Parliament. There is no country in the world where patents are so excessively high, and all for the purpose of carrying out one of the most absurd processes of hide-and-go-seek, to employ useless officials with high salaries—government gentlemen beggars. Every pensioned man who has done nothing to win a pension, and every man who has a fat office, and does no work for his pay, is a beggar—a political pauper in every sense of the term. We speak of such individuals in every country, and by this we speak strongly against the complicated process connected with the securing of a British Patent. We do not speak against it, as an evil of to-day —the evil originated when the creating of offices for favorites was the fashion, but it is wrong to maintain such evils in England at the present day, when there is so much of a better spirit abroad. The price of an English Patent is enormous, and additional fees for Scotland, Ireland and the colonies, appear to be a kind of absurdity. The management of patents for the colonies, is something inexplicable to us. A patent can be taken out in Canada, or it may be taken out in England for Canada. Now, supposing an inventor was to secure a patent for Canada, in Canada, today, and another to secure one for the same thing in England, at the same time, what would be the result? We cannot tell: it is altogether too complicated a question of British politics for us to unravel.

We are glad to see that an interest is now felt for the rights of inventors—poor inventors —by some men of the right stamp about London. Mr. Sidney stated at the meeting to which we allude, that "he felt convinced that the members of the League had only to ask for what they wanted, and to point out the reform required, and it would be granted." We recommend British Inventors to get a thorough revision of the laws for securing patents, and adopt a system like that of the United States, with some improvements. Whenever the fees for British patents are reduced, there will be a reduction of fees for English inventions at our Patent Office. We can pledge, we believe, the honor of America to do this. We want to see every nation open, to receive upon liberal terms the benefits of all inventions—everywhere produced.

Notice.--Erratum.

In our remarks last week about the experiment with Mr. McCallum's Bridge, we made a mistake in stating that he was the architect of the Cascade Bridge. He personally called on us to make this correction. Julius Adams, C. E., an able man, was the engineer of the bridge, and Mr. Fowler was the architect. Mr. McCallum, like ourselves, is an admirer of that motto, "honor to whom honor is due."

American Chair Manufacturing Company.

By reference to the last volume of the Scientific American our readers will find that a patent was granted on the 25th of September, 1849, to Thomas E. Warren, Esq., of Troy, N. Y., for an improvement on steel springs as applied to chairs, &c. Having occasion to visit Troy last week, and a few leisure hours being left upon our hands, we were slowly straying from that excellent hotel, the Troy House, down River street, "to see what we might see," when the following sign at once arrested our attention—"Thomas E. Warren's Patent Spring Chairs:" this brought to our recollection Mr. Warren's patent, so into his factory we marched, to gratify our curiosity, and to inquire how the invention was succeeding. Mr. Warren kindly invited us to accompany him through his factory, and we must say that we were surprised beyond all expectation with all that we saw and heard. Mr. Warren informed us that he had been enabled to form a company with a heavy capital in carrying out the manufacture of his patent—and the invention was now applied to almost every kind of seat and couch. The mechanical manipulations by which this invention is carried out and applied in the manufacture of chairs, &c., displayed great ingenuity. Mr. Warren being a natural genius, and one of that kind of inventors so useful to the world—combining management, energy and sagacity with his other gifts. His course is to test every invention—its practicability and payability, and then secure it by patent; but he does not stop here—he does not wait for a stray purchaser to come along and buy it, but at once braces himself to the work by manufacturing it himself, thereby rendering it useful to the public. The springs employed by him are cut from the best of hoop spring steel, shaped and tempered for use, and applied so as to render them life-renters on every chair and seat to which they are attached. We have had two of Mr. Warren's patent spring chairs in our office for the past year, and we are better pleased with them than with any other chairs we have ever seen or used. On another page will be found two engravings representing one of them, and from the description there given, its good qualities will be made apparent to all.

The engine and boiler which Mr. Warren employs to drive his machinery, are unique, novel and ingenious. The boiler is vertical with vertical tubes, and is so arranged and constructed that it returns the heated current and presents a great amount of exposed water-surface to the heat, according to the room which it occupies. It is therefore a great economiser of fuel, by generating more than a proportional amount of steam in comparison with other boilers, according to its circumferential dimensions. The engine has a cylinder of 6 inch bore and has an 18 inch stroke. It drives a reciprocating saw, one circular saw, two lathes for turning iron, two drilling machines, two wood turning lathes, a blower for his forge fires, &c. The work which it manages to perform, with 40 lbs. pressure of steam, is wonderful. There are some improvements on the engine for which Mr. Warren has taken measures to secure a patent, and an application for a patent on improvements on the boiler is now pending.

"The American Chair Company" employ about sixty workmen in the various departments of their manufactory, and orders accumulate somewhat faster than they can be supplied. This shows the prosperity of the business, the usefulness of the invention and the value of Mr. Warren's patent.

Box and Match Machine Wanted.

We have had some enquiries made about machines for making round wood boxes for matches, and for making the splints for matches, both round and square. We cannot tell where they are made, or who makes them. Some of our readers who may be writing on business to us, and who may know about them, may have the kindness to drop us a few words on the subject.

Causes which Contribute to give Various Temperatures to Countries in the same Latitude.

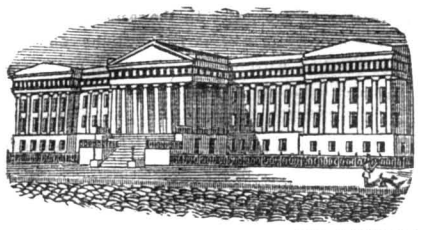
It is well known that the nations on the west coast of Europe enjoy a milder climate than any others in the world, in the same latitude. Edinburgh is about fifteen degrees farther north than New York, yet the same severity of cold is never experienced there in midwinter. There are what are termed Isothermal lines on some maps, which are traced through places of the same mean annual temperature. These were first laid down by the great Humbolt, eight lines of which are traced through the northern hemisphere, five of them being chiefly confined to opposite shores of the Atlantic, and three of them extending round two-thirds of the earth's surface. Two stations of equal latitudes, the one in Europe and the other in North America, give a mean temperature of 4 1-10 degrees to the former above the latter. To account for this, all writers on the subject attribute the elevated temperature of Europe over America to the influence of the Gulf Stream, which breaks upon the coasts of Ireland, Scotland, and Noway.

Mr. R. Adie has lately published an article in the Edinburgh Philosophical Journal, in which he attributes the elevated temperature of the West of Europe to the influence of hot breezes from the desert of Sahara, in Africa and gives good reasons why the Gulf Stream is not the cause, as has been supposed heretofore. The Gulf Stream, after a course of about four thousand geographical miles, passes along the coast of the United States for 800 miles, to the Banks of New Foundland, where it begins to cross to the shores of Norway. Now, if the Gulf Stream, with its higher temperature than the other waters of the Atlantic, was the cause of the higher temperature of the countries in north-western Europe, the shores of which it washed, why is it that the atmosphere of the places on the American coast, contiguous to the Banks of New Foundland, are not much elevated in temperature, if any, while on the coast of Norway, where the Gulf stream must have less influence, the temperature for the latitude is very great. Mr. Adie says, "there must be another source of heat to account for this elevated temperature of north-western Europe." Here is his opinion —the way he accounts for it: "At a distance varying from 1,500 to 3,000 geographical miles, according to localities, in the great desert, there is a magazine of heat, the greatest on the face of the globe, and composed of heated air capable of travelling with ten times the velocity of ocean currents. The air of this desert is generally north-easterly, and this may be supposed to militate against the ground assumed, by its thus taking away the air from the north-west of Europe, where the temperature is elevated; but the continued stream of air in the region of the trade winds all round the world, from north-east, must have a counterbalancing south-west wind somewhere, and for this reason the south-west winds of the temperate zone restore the equilibrium, which the perpetual north-east trade winds would disturb." Mr. Adie, therefore, lays it down that the south-west winds, which are so general on the north-west coast of Europe, are the return currents of air carried towards the equator by a north-east wind, and the influence of this heated air should reach Europe by a south-west wind. He does not, however, deny that the Gulf Stream exerts an influence in elevating the temperature of Britain and Norway, but he places the current of hot air from Sahara as the first distant source of heat, and the Gulf Stream as the second, which are the causes that give to the north-west coast of Europe a temperature whose mean elevation is above all other countries in the same northern latitudes. In summer, Britain and Norway have lower temperatures than the countries in North America, on the same lines, but in winter the temperature is much higher.

Maryland Institute of Mechanic Arts.

The receipts of this Institute for the fair, we see it stated in Baltimore papers, to be $5,500, and $5,000 subscriptions have come in since the Fair, for the building of a new hall. A School of design has been opened, in connection with this institute.

© 1850 SCIENTIFIC AMERICAN, INC.



☞Reported expressly for the Scientific American, from the Patent Office Records.

LIST OF PATENT CLAIMS
Issued from the United States Patent Office.

FOR THE WEEK ENDING NOVEMBER 13, 1850.

To Thos. Antisell, of New York, N. Y., for improved Filter for Oils.

I claim the use of a filter, formed as described, carried downwards by pressure, under the force of which the oleic acid is filtered upwards, and which applied in connection with the arrangement described for applying cold, allows oils and fats to be purified in warm weather.

To Charles Atwood & George Kellogg, of Birmingham, Conn., machine for making Jack Chains.

We claim the combination of the parts, movements and operations of one machine, which are required to make jack chains by one process, from the straight wire, after it is cut off in suitable lengths to finished chain, substantially as described.

We also claim, particularly, the stud-pin, with a recess in it, substantially as herein described; that is, the use of it as a mandrel around which the bow of a link is bent, while the bow of another link is held in the recess, thereby forming a continuous chain, and irrespective of the mechanical devices by which it is moved or used.

We also claim the partly revolving mandrel with its stud and nipper and other appendages for binding the last bow of each link, substantially as combined and used in our machine, and constituting part of it

To C. S. Bulkley, of Macon, Ga., for improvement in Repeaters for Electro Magnetic Telegraphs.

I claim the manner of connecting two galvanic circuits with the two electro-magnets in the said repeater, substantially as herein represented and described: to wit, each of the said galvanic circuits, as it passes through my telegraphic repeater, embracing in its course the armature of the opposite electro magnet in the said instrument previous to its passing through the helices in the electro magnet, embraced in its own respective circuit.

In combination with the above, I also claim the connecting the points with the galvanic battery or batteries, when the said points are placed in such positions in relation to the armatures of the electro-magnets in my said telegraphic reporter, and that when either one of the said electro-magnets is charged it will, by attaching its armature against one of the points, close the poles of the galvanic circuit, in which the opposite electro-magnet (in the instrument) is in connection, and thereby throw the battery into the said circuit, substantially as herein set forth.

To Samuel Cannon, of New Richmond, Pa., for improvement in Seed Planters.

I claim the attachment of my vertical cylinders to the rear of my plow or cultivator, (without regard to any particular plow) in combination with its machinery, arranged substantially in the manner and for the purposes herein set forth.

To S. S. Green, of Lowell, Mass., for improvement in Horse-shoe machinery.

I claim the combination of the two flanges rotating, disarranged with respect to each other, and operating substantially as herein described, said dies being so shaped as to give the requisite form to the metallic shoes of animals.

To Aquilla Jones, of New York, N. Y., for improvement in Drying Paints.

What I claim is the method of giving a drying quality to oils by the use of a mineral commonly known as the "red oxide of zinc," in a partially de-oxydised state, and either in combination with those substances naturally associated with it, or by the use of any of its component parts, separated by mechanical means.

To John Krauser, Sommers Crowell & Cyrus Krauser, of Reading, Pa., for improvement in Iron Railings.

We claim the combination of the rods, tubes and palings, with the manner of operating the same, as herein described.

To Samuel Pierce, of Troy, N. Y., for improvement in Cooking Stoves.

I claim the method of heating the front end of the extended part of the oven in combination with and receiving the heated air in from the hot air chamber, behind the fire back, and causing it to pass through the oven and out into the fire flues, in the manner substantially as described, and for the double purpose of heating the front end of the oven and passing a current of heated air through the oven, substantially as specified.

To Allen B. Wilson, of Pittsfield, Mass., for improvements in Sewing Machines.

I claim forming the stitch by each throw of the shuttle, and corresponding motion of the needle; that is to say, making one stitch at each forward and another at each backward motion of the shuttle, this being effected by the needle, in combination with the shuttle, both constructed, arranged and operating as herein described, or in any other mode substantially the same.

Second, I claim the combination of the sliding bar, the plate, the feeding plate, the spring, the screw, the lever and the clamping, for holding and feeding the cloth to the needle and regulating the length of the stitch, in the manner herein described, or in any other way substantially the same.

[See page 73, Vol. 5, Sci. Am., for an engraving of this good and cheap machine.]

RE-ISSUES.

To Timothy Clark, of New Haven, Conn., for improvements in machinery for turning irregular forms—previously patented Jan. 19th, 1847.

I claim the arrangement of the cutter wheel or saws, so as to cut in the direction of the grain of the wood or other substance to be formed, when this is combined with the rotation of the pattern and substance to be formed, during the operation of the cutters, substantially as described.

I also claim the rotating cutter wheel, constructed substantially as herein described, of a series of circular saws secured in an inclined position to an arbor, which carries them as herein set forth.

DESIGNS.

To C. Y. Haynes, of Philadelphia, Pa., for design for bas-relief of Henry Clay.

To D. Root, of Cincinnati, Ohio, for design for Stoves.

To R. J. Blanchard, of Albany, N. Y., (assignor to Billings P. Learned & G. H. Thatcher,) for design for Stoves.

To Apollos Richmond, of Providence, R. I., (assignor to A. C, Barstow & Co.,)for design for stoves.

Patent Cases. Important Decision.

Battin's Coal Breaker.—U. S. Circuit Court, Philadelphia, Nov. 15th. Before Judges Grier and Kane.—This very important case or rather cases, after a very long trial, was decided in equity as follows:

Battin vs. James Taggart.—Verdict for plaintiff, $800.

Same vs. Ratcliff Johnson.—Verdict for plaintiff, $800.

Same vs. Jno. G. Hewes.—Verdict for plaintiff, $800.

Same vs. Thos. S. Darling.—The plaintiff suffered a non suit in this case, after the charge of the Court, which was against him. The above verdicts are against the defendants for a violation of the patent for Battin's coal breaker. They are heavy, but the judgments will be heavier. The law authorizes the Court to treble the damages in patent right cases, which will put on each of defendants the amount of $2400.

By reference to number 3, this volume, Sci. Am., an engraving of this machine, and an opinion about the validity of the patent, will be found.

Complimentary about Patents.

MESSRS. MUNN & Co.—*Gentlemen*—I received my letters patent on the 9th ult. I feel under many obligations to you for the valuable service rendered to me in procuring the said *instrument*. I will always solicit your advice and employ you as agents to transact my business, from the fact that every thing intrusted to your care, seems to be safe, meets with attention, promptness, and is executed in good order. I would advise all, as a friend to their best interests, to apply to you for advice in making applications for patents, for I believe that your agency is the surest, safest and much the cheapest of any other known to me. This is the second patent secured through you to me, and I rejoice to know, and I am grateful for it, that those inventors who are not able to make out their own specifications, can have them done honestly, well and cheaply through you. Your obliged friend, with many thanks,

A. L. MACOMBER.

Bennington, Vt. Nov. 11, 1850.

[The patent was for the spiral double cut and feed Straw Cutter, on page 396 of our last volume.

For the Scientific American.

Geology.

Near sixty years have elapsed since systematic and effective efforts were made in this science, by men of energetic minds and persevering research. Prior to that time, indeed, facts had accumulated and praiseworthy efforts had been made. Several Arabian writers upon mineralogy, as early as the tenth century; some Italians in the sixteenth, upon fossil shells, Boccacio especially; Lehman, the German; Palissey, Rouelle, and Guettard, in France; and Owen, Woodward, Llwydd, Lister, Mithell, Holloway, Packe, Strachey, and others, in England—will always find a place in the history of this science. Still, however, until the time of Hutton and Werner, Geology consisted of little else than mere *membra disjecta;* their theories form an important epoch. Soon after, William Smith commenced his extensive researches in England; while at the same time the pupils of Werner, on the Continent, were imbibing the zeal of their master, Saussure was examining the Alps, and Pallas the Russian Empire. Not long after arose the geological constellation,—in Great Britain, Jameson, Playfair, McCulloch, Greenough, Webster, Canybeare, Buckland, Phillips, Aikin, Weaver, Seymour, Griffith, Farey, Bakewell, Parkinson, Sowerby and Miller; on the Continent of Europe, Cuvier, Brongniart, Daubuisson, Humbolt, Von Buch, Brocci, De Luc, Brochant, and Delametherie; and in our own country, Maclure, Mitchell, Gibbs, Bruce, Cleaveland, Silliman, Waterhouse and Seybert, who led the van in the effort to conquer the rocks, and, what was worse, the indifference and prejudices of their countrymen. In the hands of such men, geology outstripped even chemistry in its progress. And ere two decades of years are gone by, we believe this science will deservedly rank first in point of dignity and the extensive range of its subjects.

Physical Aspect of Geological Systems.

Granite Districts—Where the rock is soft, the hills have a heavy rounded appearance, and are only peaked and irregular in outline where it is hard and flanked by stratified rocks. The landscape is black and barren; *e. g.*, the Andes in South America.

Primitive Districts—Are bold, rugged, and unfertile; *e. g.*, the Highlands of Scotland and Brazils of South America.

Transition Districts—Are bold and mountainous, and well illustrated by the characteristic scenery of Wales.

Old Red Sandstone Districts—Are varied and irregular; the hills being less bold and precipitous than those of any subsequent period; *e. g.*, the Ochils and Sidlaws in Scotland.

Carboniferous Districts—Are tame and unattractive, relieved by few elevations or depressions of picturesque beauty, and in general bleak and unfertile; *e. g.*, Nova Scotia and Pennsylvania.

New Red Sandstone Districts—Are rather flat and gentle, consisting of rounded terraces and level expanses here and there dotted with a gentle eminence; *e. g.*, the basin of the Solway, Scotland.

Oolitic Districts—Though pleasing, are less bold than the preceding: longitudinal hollows and dry and fertile ridges undulate the country, the latter not exceeding 600 feet in height; *e. g.*, the southern slope of the Himmalehs.

Cretaceous Districts—Are distinguished by the smooth flowing outline of the hills and valleys, possessing great amenity and rural beauty; *e. g.*, the western river-plains of South America.

Tertiary Districts—Present a level and somewhat unvaried scenery; the soil is light, dry, and unfertile; *e. g.*, the Isle of Wight, vicinity of Paris, and valleys of the Swiss lakes.

The Foot Prints of the Creator.

Messrs. Gould, Kendall & Lincoln, of Boston, have re-published this splendid work; it should be read by every man in our land. As an evidence of what a working man can do, besides following his daily toil, no work ever published presents a stronger proof of the truthfulness of that old adage, "where there's a will there's a way." The author of this work, Hugh Miller, commenced life in the north of Scotland as a country quarryman—an occupation of severe toil. In digging up rocks from the bosom of mother earth, his mind was led to inquire "how rocks were made, how disposed, and to examine into their history." For many years he groped on in darkness, without one to assist him, but at length he ascended, step by step, to the front rank among geologists, and in this book he stands forth in the front rank among authors, both in style and originality of thought. The book is, as a whole, an argument against that work called the "Vestiges of Creation." That work took the position that animated nature was not a creative work, so far as it related to distinct species: the author holding that organism is created microscopic, and that man is not a created but a developed being. It was supposed for a long time that the earliest developments were small, for by digging down among the rocks beneath us, the earliest formations disclosed very imperfect and minute organisms. Mr. Miller, by his explorations, discovered that the earliest organisms were not small, and that there was no ground for the developement theory—that instead of one class being developed from another, there is a harmonious whole, but distinctive creation of species.

This book is a valuable acquisition to the literature and science of geology in our country. We recommend the study of this science to our young men; let them approach it with open and not unfaithful breasts, for amid our mountains, grand and tall, our boundless plains and flowing rivers, vast and virgin fields for exploration yet present themelves.

Barley.

The value of Barley for human food could be shown by various facts in the history and experience of the past, as well as by the science and practice of the present. Speaking of Count Rumford's experiments in providing food for the poor, the London Encyclopædia (article "Food") says:—"After an experience of more than five years in feeding the poor at Munich, during which time every experiment was made that could be devised, it was found that the cheapest, most savoury, and most nourishing food that could be provided was a soup composed of pearl barley, peas, potatoes, cuttings of fine wheaten bread, vinegar, salt, and water, in certain proportions.

This plant, although it does not possess the beauty of the wheat, nor the elegance of the oat, is nevertheless beautiful in its form and appearance, whilst it possesses the valuable quality of being more hardy than either of these, and can be grown in climates where these cannot. According to Einhof, the ripe grain contains in 100 parts:—Farina, 70·05; Bran, 18·75; Water, 11·20; and according to Playfair, it contains in 100 parts:—solid substance, 84½; Water, 15½; Flesh principle, 14; Heat principle, 68½; Bone principle, 2. The form in which this grain can be best used in America, is that known as Pearl Barley, which is made from the "two rowed barley." The grain is first dried in a kiln, then deprived of its bran by a mill, and finally made nearly round by trituation. Einhof states that the farina, of which the pearl barley is chiefly composed contains, in 100 parts:—Starch, 67·18; Gluten, 3·52; Sugar, 5·21; Gum, 4·62 Water, 9·37.

© 1850 SCIENTIFIC AMERICAN, INC.

TO CORRESPONDENTS.

"W. C. W., of Va."—Volume 5 was shipped to your address, by Adams & Co.'s Express, last Thursday week, Nov. 14.

"A. B., of Mich."—Tredgold, when completed, will cost as much as $60. We have not a lithograph of any of the engines you refer to, nor to the cut off, but we have seen engines applied to propellers, not the least different from others, except a cog-wheel on the crank shaft to mesh into a pinion on the propeller shaft.

T. G. S., of N. Y."—We suppose that you must be aware of hinged windows having been in use long ago, and are now common. Window fasteners, as substitutes for the rope and pulley plan, are also numerous. Your plan of confining window sashes in their frames is new to us, and so far as we are able to judge, patentable, as being new, but we have seen windows that were moveable, by having spring strips in the frame, and grooves in the sides of the sash. We could not advise you to apply for a patent.

"L. B., of Vt."—The discovery which you have made is not new, the precipitate is not the pure alkali, but a salt called glauber salts, the sulphate of soda, if soda you used, or if ash—it is the sulphate of potash. We have heard of ley and cold soap-suds being used for tempering, but could never account for any virtue in them over cold water and salt.

"A. T. P., of Ill."—The sketch of your eccentric switch fastener is not new. The principle although it may not have been applied to this purpose before is not new. Fasteners falling by their own gravity are well known devices and have been applied to many different purposes. In order to sustain a patent the principle must be new, which does not appear from the sketch.

W. A., of Conn."—We cannot attend to answering such interrogatories as you have propounded. You will see upon reflection that it is entirely out of our line of business, and if we attend to you others have a right to expect such favors also. We have no disposition to open a general intelligence office.

"A. G., of Va."—We are not prepared to answer your communication at present.—Nothing has been done as yet with the invention.

"G. G. H., of G. S."—Minifie's Drawing Book is a large octave volume containing about 120 pages, and 40 steel plate engravings and it is without doubt the most valuable and comprehensive work ever published upon the subject. To your last inquiry no definite or satisfactory information can be given. Vacancies without doubt are often occurring in good establishments, but we are seldom if ever applied to for workmen. If we should hear anything favorable you would be informed.

"A. D. B., of Geo."—Yours of the 11th is received, and the correspondence with Mr. H. has been attended to. You will hear from us concerning the telescope in a few days.

"L. L., of N. Y."—Your model was received duly, and the case will come up for our attention in a few days. We have heard nothing yet from your other application.

"A. A. C., of N. J."—We have not the slightest confidence in your alleged invention. You can learn much from the unfortunate experience of others in the same line.

"W. T. C., of Ohio."—1st. You would see that the float is old and well known, by our last No. 2nd. Your machine for engraving would not answer, but it would do for a mortising machine, and there is one like it (Mr. Chandlers) in Illinois. 3rd. A rotary moving machine was illustrated on page 289, Vol. 4, Sci. Am. There is the best history of rotary engines ever published in Vol. 4, Sci. Am. We have never seen one to suit our taste yet. Perpetual motion is a *phantom*, we cannot give it any other name. We are much obliged to you for the news about the railroad.

"B. A., of N. C."—The endless chain horse power is manufactured by Messrs. Wheeler, Melick & Co., Albany, N. Y. They are very much used for sawing wood, &c. The price we cannot give—but think from 75 to 100 dollars.

"D. G., of Pa."—The specific gravity of gold is to the specific gravity of water as 19 to 1, that is to say, a cubic inch will weigh 19 times as much as the water that could be contained in a vessel the capacity of which is precisely equal to one cubic inch.

"T. T. H., of N. H."—The ascending power of a balloon is equal to the weight by which it is lighter than an equal bulk of common air, every cubic foot of the inflammable air may be considered equal to three and one-sixth drachms avoirdupois, which is about one sixth of the weight of common air.

T. H., J. R., Dr. A. G., and T. W. H., all of N. Y.—Your applications have been filed in the Patent Office since our last issue.

Money received on account of Patent Office business, since Nov. 14, 1850 :—

J. R., of N. Y., $50; J. W., of N. Y., $20; C. F. M., of N. Y., $30; J. W. O., of O., $10; S. B., of Pa., $55; T. W. H., of N. Y., $30, and Dr. A. G., of N. Y., $35.

Incog Correspondents.

We had supposed that all correspondents of the Scientific American, knew our rule of laying all letters, which had not true signatures attached—in other words, the author's name withheld—in our black-box. We cannot and will not answer such letters: no person should be ashamed of letting us know who he is when he writes. His name is perfectly sacred with us.

We would also say to our correspondents, that it is desirable for them to be brief and clear. Take time and write short letters—mind this.

An Important Paragraph.

To preclude our subscribing friends the necessity of writing for the back numbers of the Scientific American, we shall forward to all new subscribers the back numbers of Vol. 6, dating their subscriptions from the commencement unless they instruct to the contrary when they remit. We shall persue this course of sending the back numbers issued on this volume until No. 13, and after that time the names will be entered from the date of the reception of orders, unless the writer expresses a wish to receive the back Nos.—in that case they will be promptly forwarded.

Those desiring volume 5 of the Scientific American are informed that we are able to furnish a few complete volumes, (bound) at $2,75 each. Also, we can send by mail sets complete, minus No. 1, for $2. We would also say, that whenever our friends order numbers they have missed—we shall always send them, if we have them on hand. We make this statement to save much time and trouble, to which we are subjected in replying, when the numbers called for cannot be supplied.

Patent Claims.

Persons desiring the claims of any invention which has been patented within fourteen years can obtain a copy by addressing a letter to this office; stating the name of the patentee, and the year the patent was granted (adding the month of the year when convenient), and enclosing one dollar as fee for copying.

ADVERTISEMENTS.

Terms of Advertising:

One square of 8 lines, 50 cents for each insertion.
" 12 lines, 75 cts., " "
" 16 lines, $1,00 " "

Advertisements should not exceed 16 lines, and cuts cannot be inserted in connection with them for any price.

THE DAGUERRIAN JOURNAL.—Devoted to the Daguerrian and Photogenic Arts; also embracing the Sciences, Arts and Literature.—No. 2 of the above Journal is now ready: it consists of 32 octavo pages, with covers. Published semi-monthly at $3 per annum, in advance. To be had of booksellers generally. Contents of No. 2—Researches on the Theory of the principal Phenomena of Photography in the Daguerreotype process, by A. Claudet; Smoke Consumers; Visit to the Art Union; Light, by T. Antisell, M. D.; Copying Daguerreotypes; Photography and Talbotypes; Beating Time; Crayon Daguerreotype; Submarine Telegraph; Plate Holder, illustrated; American Photographic Association; Statue of Calhoun; March of Discovery; Daguerreotyping in New York; Our Daguerreotypes; Letters from Friends; Photography, by T. Antisell, M. D., Statue of Ethan Allen; Camera for Views, illustrated; Coating the Daguerreotype Plate; Pictures on Plate Glass, Ivory and Wood. S. D. HUMPHRRY,
1* Editor and Publisher, 265 Broadway, N. Y.

Patent Office.

128 FULTON ST.

NOTICE TO INVENTORS.—Inventors and others requiring protection by United States Letters Patent, are informed that all business relating to the procuration of letters patent, or filing caveats, is transacted at the Scientific American Office, with the utmost economy and despatch. Drawings of all kinds executed on the most reasonable terms. Messrs. Munn & Co. can be consulted at all times in regard to Patent business, at their office, and such advice rendered as will enable inventors to adopt the safest means for securing their rights.

Arrangements have been made with Messrs. Barlow and Payne, Patent Attornies, in London, for procuring Letters Patent in Great Britain and France, with great facility and dispatch.

MUNN & CO.,
128 Fulton street, New York.

BLODGETT & LEROW'S ROTARY SEWING MACHINE.—Six silver medals from the different Fairs, at New York, Boston, &c., were awarded this machine; it was patented October 2nd, 1849. One of the inventors, Mr. Lerow, has just returned from Europe, where he has obtained patents for this machine in England, Scotland, and all the British Colonies, also in France and Belgium.

This machine will do fine sewing at the rate of one yard per minute. Over 200 of these machines are now in successful operation in New York, Philadelphia, Cincinnati, Providence, Worcester, New Jersey and other places. For particular reference as to the merits of this machine, we would refer to Messrs. Wm. H. Cary & Co., 245 Pearl st., New York, and also Wm. E. Whiting & Co., 124 Pearl st., N. Y., and to the machine itself, which tells its own story, and which may be seen on application to Wm. E. Whiting & Co., General Agents for the United States, 124 Pearl st., N. Y. 9tf

BAILEY'S SELF-CENTERING LATHE, for turning Broom and other handles, swelled work, chair spindles, &c.; warranted to turn out twice the work of any other lathe known—doing in a first rate manner 2000 broom handles and 4000 chair spindles per day, and other work in proportion. These lathes are simple in construction, not liable to get out of repair, and will do enough more than other lathes, in three months' use, to pay their cost. One of them may be seen at the office of Munn & Co., New York. Price of Lathe for turning broom and hoe handles, rake stales, scythe snaths, windsor and cottage chair legs and pillars, $100, with one set of tools; $125 with two sets. Lathe for turning chair spindles, whip stocks, gun rods, &c., complete, $75. Orders, post-paid, may be forwarded to L. A. SPALDING, Lockport, N. Y. 93m

MACHINES FOR CUTTING SHINGLES. The extraordinary success of Wood's Patent Shingle Machine, under every circumstance where it has been tried, fully establishes its superiority over any other machine for the purpose ever yet offered to the public. It received the first premium at the last Fair of the American Institute—where its operation was witnessed by hundreds. A few State rights remain unsold. Patented January 8th, 1850,—13 years more to run. Terms made easy to the purchaser. Address, (post-paid) JAMES D. JOHNSON, Redding Ridge, Conn., or Wm. WOOD, Westport, Conn.. All letters will be promptly attended to. 10tf

COTTON MACHINERY FOR SALE—Viz. 4 filling frames, 144 spindles each; dead spindle, nearly new; 1 three head drawing frame, with extra rolls; 1 Mason's speeder, 16 strand; 1 lapper; 1 cone willower; 1 band machine; 1 bundling press; 1 warper—on very reasonable terms, by ELI WHITNEY.
New Haven, Nov., 1850. 9 6*

COPPER STILL FOR SALE.—A still of about 21 gallons' capacity, in good order and tinned inside; has been used very little; its weight is about 90 or 100 lbs., and it will be sold for $21. It can be seen at Mr. Patterson's Hardware Store, Bowery, 2nd door below Bayard street, N. Y. 9 2*

PATENT METALIC OIL FOR MACHINERY—Warranted not to gum. Manufactured under Cumberland Brothers patent (April 6th 1849), by C. E. de la Vergne & Co., Elizabethport, N. J. Transparent metalic, adapted to light bearings, spindles, &c., will last a quarter longer than pure sperm. For burning will be found superior. Fluid White Metalic, of the consistance of cream, to be used without wick and tube, adapted to the oiling of engines, shaftings, &c. will last twice as long as pure sperm oil. Hard White Metallic, to be used instead of tallow, will last three times as long; when used in cylinders, the packing must be renewed. Blue Metallic grease, prepared for greasing the inside of boilers when thoroughly cleaned, that the scale which afterwards collects may be removed with one third the usual time and expense. It is also adapted to the greasing of cog wheels; and for the axels of vehicles it has been found to last more than four times as long as any grease ever used for that purpose.

KENNEDY & GELSTON, Sole Agents,
50 3m No. 8 Pine st. New York.

FELLY CUTTING MACHINE.—MESSRS. JOSEPH ADAMS & SONS, Amherst, Mass., offer for sale town, county and State rights, or single machines, with the right to use, of this unrivalled Felly Cutting Machine, illustrated in No. 5, Vol. 6, Scientific American. It is portable, easily kept in order, requires but little power to drive it, and will execute in the most rapid and perfect manner, cutting 60 good fellys in one hour. 6tf

RAILROAD CAR MANUFACTORY.—TRACY & FALES, Grove Works, Hartford, Conn. Passage, Freight and all other descriptions of Railroad Cars, as well as Locomotive Tenders, made to order promptly. The above is the largest Car Factory in the Union. In quality of material and in workmanship, beauty and good taste, as well as strength and durability, we are determined our work shall be unsurpassed. JOHN R. TRACY,
5 tf. THOMAS J. FALES.

UNITED PATENT OFFICE IN PARIS AND LONDON.—GARDISSAL & CO., 29 Boulevard St. Martin, Paris, and No. 9 Arthur st. west, city, London. Patents procured in Great Britain and on the Continent: "Le Brevet d'Invention," weekly journal, published by the same firm. 3 4eow*

TO HAMMERSMITHS.—Wanted. a Tilter. Apply to the N. Y. Cast Steel Works, foot of 24th street, East River, New York. 6tf

FOWLERS & WELLS, Phrenologists and Publishers, Clinton Hall, 131 Nassau st., New York—Office of the Water Cure and Phrenological Journals. Professional examinations day and evening. 3 6m

ALLEN'S PLANING MACHINE.—Sole proprietor for Ohio, D. E. GARDNER, Marietta, Ohio. 8 4*

GURLEY'S IMPROVED SAW GUMMERS—for gumming out and sharpening the teeth of saws can be had on application to G. A. KIRTLAND, 205 South st., N. Y. 10 6

TO MANUFACTURERS AND PATENTEES.—A person of business habits would be willing to invest some $3,000 to $5,000 in an established manufactory in Brooklyn or New York, or in the production of a newly patented article of real merit and general use. Address A. B. C., to the care of the Editors of this paper. No letter will be taken from the office unless post-paid. 102*

SCRANTON & PARSHLEY,—New Haven, Conn., will have finished by the 15th of December, 12 Engine Lathes of 8, 10 and 12 feet beds, and weigh 1500, 1650, and 1800 lbs; price $200, $220 and $240. These Lathes are from a new set of patterns, and are greatly improved from their former small size lathes; they swing 21 inches, and have back and screw gearing, centre rest, follow rest, drill, chuck and overhead reversing pulleys, all hung in a cast iron frame, ready for use. On and after the first of Dec., by addressing as above (post paid) cuts can be had of these, with index card, showing the different pitch threads that these lathes will cut.

Two of the power planers heretofore advertised in this paper, are now ready to ship to the first order; they weigh from 4500 to 4800 lbs., when finished. 9tf

A CARD.—The undersigned begs leave to draw the attention of architects, engineers, machinists, opticians, watchmakers, jewellers, and manufacturers of all kinds of instruments, to his new and extensive assortment of fine English (Stubs) and Swiss Files and Tools, also his imported and own manufactured Mathematical Drawing Instruments of Swiss and English style, which he offers at very reasonable prices. Orders for any kind of instruments will be promptly executed by F. A. SIBENMANN, Importer of Watchmakers' and Jewellers' Files and Tools, and manufacturer of Mathematical Instruments, 154 Fulton street. 1 3m*

TO PAINTERS AND OTHERS.—American Anatomic Drier, Electro Chemical graining colors, Electro Negative gold size, and Chemical Oil Stove Polish. The Drier, improves in quality, by age—is adapted to all kinds of paints, and also to Printers' inks and colors. The above articles are compounded upon known chemical laws, and are submitted to the public without further comment. Manufactured and sold wholesale and retail at 114 John st., New York, and Flushing, L. I., N. Y., by

QUARTERMAN & SON,
48tf Painters and Chemists

COTTON, WOOLEN AND SILK MANUFACTURERS' DEPOT.—ANDREWS & JESUP, No. 70 Pine st., N. Y., dealers in articles for the use of Cotton, Woolen and silk manufacturers, and agents for the sale of shearing, carding, burring, napping, wool-picking, flock-cutting and waste machines, regulators, satinet and jean warps, &c. Weavers' reeds and heddles, bobbins and spools, of every description, made to order. Sperm, lard and olive oils and oil soap. 1tf

MACHINERY.—S. C. HILLS, No. 12 Platt Street, N. Y., dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills Kase's, Von Schmidt's, and other Pumps, Johnson's Shingle machines, Woodworth's, Daniel's and Law's Planing machines, Dick's Presses, Punches, and Shears; Mortising and Tennoning Machines, Belting, machinery oil; Beal's patent Cob and Corn Mills; Burr Mill, and Grindstones, Lead and Iron Pipe, &c. Letters to be noticed must be post paid. 46tf

MATTEAWAN MACHINE WORKS.—Locomotive Engines, of every size and pattern. Also tenders, wheels, axles, and other railroad machinery. Stationary engines, boilers, &c. Arranged for driving cotton,, woolen and other mill. Cotton and woolen machinery of every description, embodying all the modern improvements. Mill geering, from probably the most extensive assortment of patterns in this line, in any section of the country. Tools, turning lathes, slabbing, plaining, cutting and drilling machines. Together with all other tools required in machine shops. Apply at the Matteawan Co. Work, Fishkill Landing, N. Y., or at No. 66 Beaver st. New York City, to
40tf WILLIAM B. LEONARD, Agent.

LAP-WELDED WROUGHT IRON TUBES for Tubular Boilers, from 1 1-4 to 7 inches in diameter. The only Tubes of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine, and other Steam Engine Boilers.

THOS. PROSSER & SON, Patentees,
8tf 28 Platt st., New York.

HISTORY OF PROPELLERS.—This interesting and useful volume, compiled by one of the Editors of the Scientific American, from articles previously prepared for, and published in, Vol. 5 of that paper, is now ready for the Trade. It contains 144 pages of letter-press, and 82 illustrations, embracing views of nearly every kind of propeller that has been invented. This work is beautifully bound in cloth, and is sold at the low price of 75 cts. We also have them in paper covers, for mailing—price as above. Address MUNN & CO., at this Office.

FACTORY AND WATER POWER.—For rent or sale.—A factory building in New Brighton, Beaver Co., suitable for woollen or cotton factory, 40 by 96 feet, three stories high, with plenty of water power. The driving power is now being made new, and if applied for soon, can be made to suit the renter. Apply to A. W. TOWNSEND, near the premises, or to J. W. GILL, Wheeling, Va. 3 8*

FOREIGN PATENTS.—PATENTS procured in GREAT BRITAIN and her colonies, also France Belgium, Holland, &c., &c., with certainty and dispatch through special and responsible agents appointed, by, and connected only with this establishment.—Pamphlets containing a synopsis of Foreign Patent laws, and information can be had gratis on application
JOSEPH P. PIRSSON, Civil Engineer,
46tf Office 5 Wall street, New York.

BOSTON LOCOMOTIVE WORKS.—No. 289 Harrison avenue, Boston, manufacture at short notice, Locomotive and Stationery Steam Engines, boilers,—iron, copper, composition and brass castings; copper work; Van Kuran railroad car and truck wheels, and all kind of railroad machinery.

DANIEL F. CHILD,
1tf Treasurer Boston Locomotive Works.

TO IRON FOUNDERS, &c.—Fine ground and bolted Foundry Facing, viz.: Sea Coal, Charcoal, Lehigh, Soapstone, and Black Lead. Fire Clay, Fire Sand, Keo ld and Fire Mortars; also Iron and Brass Founder's superior Moulding Sand, in barrels, or otherwise, for sale by G. O. ROBERTSON, New York. City Office 4 Liberty Place, Maiden Lane, near the Post Office. 8 4*

© 1850 SCIENTIFIC AMERICAN, INC.

Scientific Museum.

Scientific Memoranda.

THE REPTILE ROOM AT NIGHT.—The following is taken from a recent number of Bentley's London Miscellany:

"About ten o'clock one evening during the last spring, in company with two naturalists of eminence, we entered that apartment. A small lantern was our only light, and the faint illumination of this imparted a ghastly character to the scene before us. The clear plate-glass which faces the cages was invisible, and it was difficult to believe that the monsters were in confinement and the spectators secure. Those who have only seen the boas and pythons, the rattlesnakes and cobras lazily hanging in festoons from the forks of the trees in the dens, or sluggishly coiled up, can form no conception of the appearance and actions of the same creatures at night. The hugh boas and pythons were chasing each other in every direction, whisking about the dens with the rapidity of lightning, sometimes clinging in hugh coils round the branches, anon entwining each other in massive folds, then separating they would rush over and under the branches, hissing and lashing their tails in hedious sport. Ever and anon thirsty with their exertions, they would approach the pans of water and drink eagerly, lapping it with their forked tongues. As our eyes became accustomed to the darkness, we perceived objects better; and on the uppermost branch of the tree, in the den of the biggest serpent, we perceived a pigeon quietly roosting, apparently indifferent alike to the turmoil which was going on around, and to the vicinity of the monster whose meal it was soon to form. In the den of one of the smallest serpents was a little mouse, whose panting sides and fast-beating heart showed that it, at least, disliked its company. * * *

During the time we were looking at these creatures, all sorts of noises were heard. A strange scratching against the glass would be audible—it was the carnivorous lizard endeavoring to inform us that it was a fast day with him, entirely contrary to his inclination. A sharp hiss would startle us from another quarter,—and we stepped back involuntarily as the lantern revealed the inflated hood and threatening action of an angry cobra. Then a rattlesnake would take umbrage, and, sounding an alarm, would make a stroke against the glass, intended for our person. The fixed gaze from the brilliant eyes of the huge pythons was more fascinating and pleasant—and the scene, taking it altogether, more exciting than agreeable. Each of the spectators involuntarily stooped to make sure that his trousers were well strapped down; and, as if our nerves were jesting, a strange sensation would every now and then be felt, resembling the twining of a small snake about the legs.

GUANO SUPERSEDED.—The St. Vincent Royal West Indies Gazette mentions that a gentleman of that island has sent to England a quantity of pozzolona, to have it tested as a cement, and was agreeably surprised to learn that the chemist who tested it had declared it to be the best manure that had yet been discovered, and that it was far preferable to Guano. The gentleman in question was complimented on having a mine of wealth superior to gold. When it is considered (says the Gazette) that the island abounds in this valuable substance—the best cement, and, as it now appears, the best manure known—we cannot refrain from offering our public congratulations on the recent discovery, which must ere long bring great wealth into the islands, by supplying them with an article which must be much needed by the sugar growers. Pozzolona from St. Vincent could of course be supplied here much cheaper than guano, and might, in consequence of its cheapness, be extensively used.

TREATMENT OF SCARLET FEVER BY INUNCTION.—An eminent physician of Washington City, Harvy Lindsly, has recommended the following treatment for scarlet fever, practised by Dr. Schneemann, Physician to the King of Hanover, as contained in a recent number of the London Lancet:—

From the first day of the illness, and soon as we are certain of its nature, the patient must be rubbed morning and evening over the whole body with a piece of bacon, in such a manner that, with the exception of the head, a covering of fat is everywhere applied. In order to make this rubbing in somewhat easier, it is best to take a piece of bacon the size of the hand, chosing a part still armed with the rind, that we may have a firm grasp. On the soft side of this piece slits are to be made, in order to allow the oozing out of the fat. The rubbing must be thoroughly performed, and not too quickly, in order that the skin may be regularly saturated with the fat. The beneficial results of this application are soon obvious, with a rapidity bordering on magic, all, even the most painful symptoms of the disease are allayed; quiet, sleep, good humor, appetite return, and there remains only the impatience to quit the sick-room.

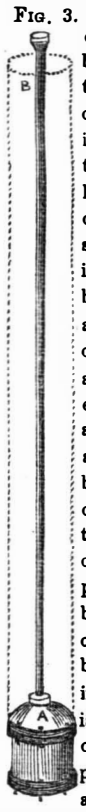
ARKANSAS MINERALS.—The Memphis Southerner (Tenn.) mentions several specimens of very rich lead ore taken from mines near Batesville, Arkansas. A number of silver, lead, gold and marble deposits have been discovered in the same State, and arrangements are making to prosecute mining operations to a considerable extent.

DIAMOND IN A COAL MINE.—A French paper, the "Courier du Nord," says that the Minister of Agriculture, while recently visiting the coal mines of the Anzin company, at Demain, discovered a rough diamond, fixed in a stone which had been extricated from the coal.

Hydrostatics.

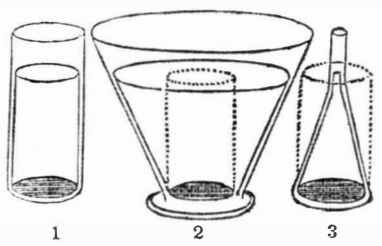
(Continued from page 72.)

FIG. 3.



From the principle of equal pressures, and the first condition of the equilibrium of fluids, as noticed in the last number, important consequences are obtained. The pressure of water and other liquids upon a given surface, is in proportion jointly to the magnitude of that surface, and to the mean height of the liquid above the centre of gravity—the bottom of the vessel. This will easily be understood in the case of the vessel 1 (fig. 4), but is not so evident in the vessels 2 and 3, same figure. These vessels contain unequal quantities of water, and are different from one another, except being of equal height and base area, and in each case the same amount of pressure is exerted on the base, without any regard to the bulk of water; hence we may estimate the pressure of a fluid upon the base of the containing vessel, by multiplying its height into the area of the base, and this product by the density of the fluid. In the vessel 2, the bottom bears only the column of fluid indicated by the dotted lines, which is exactly equal to the whole fluid of 1; but although it may appear paradoxical, the base of vessel 3 bears a pressure exactly equal to the same weight of fluid, although the whole vessel does not contain so much. Let a vessel, A, fig. 3, full of water, have a slender tube, B, screwed into it: on filling the tube with water to a certain height, the vessel will immediately burst, and the height of the fluid

FIG. 4.



1 2 3

which will produce this effect, will be exactly the same, however large or however small the tube may be. The weight of a single ounce of water, if piled high enough, may burst the strongest vessel. Suppose the bore of the tube to be 1-20th of an inch, then whatever pressure is transmitted through it, an equal pressure will be borne by every space 1-20th of an inch throughout the interior of A. A square inch contains about 530 such spaces, so that one ounce of water poured into such a tube, would exert a pressure of 530 ounces, or 33 pounds, on every square inch of A—a force which would require a very strong vessel to resist. The whole interior surface of a vessel is subject to a most extraordinary pressure, in consequence of the manner in which the liquid pressure is transmitted, viz., vertical lines, as represented and described last week. And the interior surface is not only subject to this pressure, but the liquid particles in every part of the vessel, are also subject to the same pressures. An exposition of this hydrostatic principle will be still more clearly defined in our next.

Fat and Lean.

Dr. Thomas Chambers, Fellow of the Royal College of Physicians, London, has published a volume on Corpulency or Excess of Fat in the Human Body. In it he states that those who attain to great age are generally thin and spare, with considerable fat about the heart—"a prominent abdomen being as uncommon among nonagenarians, as it is in youth." The fat, sleek-headed man only "lives up to a certain age, those who top fourscore years being rarely of the podgy order." The Doctor has not told us how one gets fat and another gets lean—but it seems that it is not owing to the amount of food consumed, for some men will get fat if they eat very sparingly, while others get fat, though they consume like a horse-leech—the thin man throws off his fat as soon as he makes it, the obese man lays it up in deposit—the fiery breath of the lion keeps him spare, the less restless grazing animal gets flesh. Fat has important duties to perform, it acts as a bed to allow the muscles to move freely, and to protect them from injury, blows, falls, &c. It also answers the purpose of retaining warmth—it is a store-house of carbon for the use of the lungs. The fat man will live longer without food than the lean one. Liebig was not the first to discover this: Galen, quoting from an older Greek philosopher, says, "fat in the human frame is used in the same way as oil supplies the flame of a lamp—when the flame is less powerful, less fat is required, and it is laid byin a treasure house." An over-development of fat, however, is injurious, for slight accidents to fat persons easily produce erysipelas, low inflammation, gangrene, &c. In respect to consumption, leanness is a symptom of the disease, and in many cases of this disease, Dr. Chambers believes that cod liver oil is a remedy, at least to prolong life, if not to effect a cure. The man who has the best chance for a long life is not the very lean, and certainly not the very corpulent; but the man with an erect form, good amount of flesh on his bones, and whose front exhibits but a small regard for aldermanic distinctions.

Telegraph in America.

While in England the telegraph, according to a recent article in the London Times, has been almost a failure, in America it has been singularly successful. In France, it is only employed by the government, and in England by *very* wealthy companies; it is employed in America not only by our strong public telegraph companies, but also by others for their own private use.

Messrs. R. Hoe & Co., the great manufacturers of printing presses, &c., in Gold street, have had, during the past few months, in their counting room, one of Morse's magnetic telegraphic machines, which communicates with their establishment, nearly two miles distant, in the eastern part of the city. The machines which occupy but a small space, are regularly used by the proprietors and clerks with perfect ease. Information relative to the progress of orders, and questions on their business, are asked and answered with almost ordinary speaking rapidity. The two establishments are thus rendered as accessible to each other for conversation as though both were under the same roof. The expense per week for magnetic power is said to be very trifling, and the alphabet used may be readily acquired by any person in a few days.

The Matteawan Manufacturing and Machine Co., near Fishkill, N. Y., about 60 miles from this city, have a branch telegraph in their counting-house there, by which they can telegraph in a few seconds to Mr. Leonard, the agent, No. 66 Beaver street this city.

LITERARY NOTICES.

MARINE AND NAVAL ARCHITECTURE.—Number 12 of this great American work is now published, which completes the volume. It is a book which every American ship carpenter should own. There is not another like it in the world. It is written in a clear and vigorous style, so plain that every body can understand what the author means. Those who desire to possess this valuable book should send their order to this office at an early date. The price is 75 cents per part, and there are 12 parts.

AMERICAN RAILWAY GUIDE, for December.—This is, without doubt, the most elaborate and useful guide book ever published. The projector, Mr. C. Dinsmore, has devoted a great amount of energy and care in placing the most reliable information before the public, and he is receiving encouragement commensurate with his endeavors.

THE DAGUERRIAN JOURNAL.—This is the title of a new semi-monthly magazine, by S. D. Humphrey, editor and publisher, this city; by it we learn, what we had only a faint idea of before, the greatness of the Daguerreotype business in this city. There are 71 rooms devoted solely to the art, which employ about 127 operators.

THE N. Y. DENTAL RECORDER—October number, Edited by Dr. C. C. Allen, 29 Warren street, N. Y., contains several excellent papers upon Dentistry worthy the attention of those attached to the profession. It is published at $2 per annum.

The November numbers of the Phrenological and Water Cure Journals are filled as usual with an interesting variety of original matter. Published, each, monthly by Messrs. Fowlers & Wells, at $1 per annum.

PETERSON'S LADIES' NATIONAL MAGAZINE, for December, contains a beautiful colored Plate of Fashions, and two fine steel engravings, besides 12 extra pages of matter. Throughout, this number is good. For sale by Dewitt & Davenport.

HOLDEN'S DOLLAR MAGAZINE, for December, appears upon our table well filled with literary matter of sterling merit. This magazine is unrivalled for intrinsic worth, when estimated according to the terms charged.

HYGIENE AND HYDROPATHY.—This is the title of a very neat little book of three lectures on these two subjects, by Roland S. Houghton, M. D., published by Fowler & Wells, this city. We cannot but recommend this book as one of great interest, as it treats of the application of Hydropathy to the cure of cholera in a most logical and convincing manner.

MECHANICS

INVENTORS
AND
MANUFACTURERS.

The Best Mechanical Paper
IN THE WORLD!
SIXTH VOLUME OF THE
SCIENTIFIC AMERICAN.

The Publishers of the SCIENTIFIC AMERICAN respectfully give notice that the SIXTH VOLUME of this valuable journal, commenced on the 21st of September last. The character of the SCIENTIFIC AMERICAN is too well known throughout the country to require a detailed account of the various subjects discussed through its columns.

It enjoys a more extensive and influential circulation than any other journal of its class in America.

It is published weekly, as heretofore, in *Quarto Form*, on fine paper, affording, at the end of the year, an *ILLUSTRATED ENCYCLOPEDIA*, of over FOUR HUNDRED PAGES, with an Index and from FIVE to SIX HUNDRED *ORIGINAL ENGRAVINGS*, described by letters of reference; besides a vast amount of practical information concerning the progress of SCIENTIFIC and MECHANICAL IMPROVEMENTS, CHEMISTRY, CIVIL ENGINEERING, MANUFACTURING in its various branches, ARCHITECTURE, MASONRY, BOTANY,—in short, it embraces the entire range of the Arts and Sciences.

It also possesses an original feature not found in any other weekly journal in the country, viz., an *Official List of PATENT CLAIMS*, prepared expressly for its columns at the Patent Office,—thus constituting it the "*AMERICAN REPERTORY OF INVENTIONS.*"

TERMS—$2 a-year; $1 for six months.
All Letters must be Post Paid and directed to
MUNN & CO.,
Publishers of the Scientific American,
128 Fulton street, New York.

INDUCEMENTS FOR CLUBBING.

Any person who will send us four subscribers for six months, at our regular rates, shall be entitled to one copy for the same length of time; or we will furnish—

10 copies for 6 mos., $3 | 15 copies for 12 mos., $22
10 " 12 " $15 | 20 " 12 " $28

Southern and Western Money taken at par for subscriptions; or Post Office Stamps taken at their full value.

PREMIUM.

Any person sending us three subscribers will be entitled to a copy of the "History of Propellers and Steam Navigation," re-published in book form—having first appeared in a series of a tioles published in the fifth Volume of the Scientific American. It is one of the most complete works upon the subject ever issued, and contains about ninety engravings—price 75 cents.

© 1850 SCIENTIFIC AMERICAN, INC.